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ABSTRACT

This document contains the final report and the third-year report of the Center for Adult Learning Research, which was established at Montana State University (MSU) in December 1985 with support from the W. K. Kellogg Foundation. The final report reviews first- through third-year activities. It describes the following research projects: strategies adults use in real-life learning; lasting impact of a study group; empowerment of retired citizens; place of literacy in the life of the low-literate adult; development of a model to demonstrate that investment in adults' capital assets improves economic development; effect on learning and teaching of cultural differences in regard to selfhood among citizens of China and the United States; and adult learning strategies and teaching and learning in the Native American community. The Summer Institute on Adult Learning and training and research assistance activities are summarized; project monographs are described, and publications of center staff are listed. The impact of the Kellogg Center on graduate students and faculty members and the effect of withdrawal of financial support for the Center are addressed. The third year report describes the following activities: Summer Institute on Adult Intelligence; research on learning strategies adults can use to improve their learning; a study of teaching or learning styles associated with effective learning by Native American students; the state of the art in research on adult learning; and maintenance of individual differences of learning style through use of cluster analysis. Research by postdoctoral and doctoral fellows, cooperative research efforts, dissemination efforts, third-year linkage activities, and plans for year four are discussed. Appendixes list staff presentations and publications. (YLB)

Kellogg Center for Adult Learning Research

Final Report

AND

THIRD YEAR REPORT

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Kellogg Center for Adult Learning Research

Montana State University

Bozeman, MT

1990

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Kellogg Center for Adult Learning Research

Final Report

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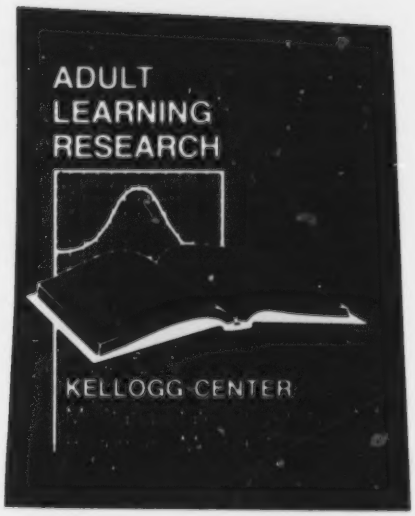

Kellogg Center for Adult Learning Research

Montana State University

Bozeman, MT

1990

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Kellogg Center for Adult Learning Research: Final Report

Introduction

The Center for Adult Learning Research was established at Montana State University (MSU) in December of 1985 with support from the W. K. Kellogg Foundation. Funded as a four-year project, the Kellogg Center had the two major purposes of contributing to the research base in adult learning and of training a cadre of professionals who as adult education researchers could continuously contribute to the body of knowledge in adult learning. During the four years of the project, steady and impressive progress in achieving these major goals was achieved. Although the first year of the project focused on start-up activities, the second and third years witnessed the initiation of numerous research activities and of outreach to those in the field of adult education. These developmental efforts resulted in the Kellogg Center functioning as a true research center during its final year for adult educators outside of MSU and for researchers within MSU. During the fourth year, the Kellogg Center was the focal point for original research projects by the staff, for postdoctoral research and training, for training doctoral fellows and graduate students from the region, for stimulating departmental changes, for initiating new courses related to various aspects of conducting research, and for developing publications for the field. Through these diverse activities, the Kellogg Center fulfilled its mission of influencing the research direction of the field of adult education and of training adult education researchers to conduct diverse research related to adult learning.

First year activities for the project related to organization and staffing. These were accomplished with the assistance of the MSU advisory committee and a regional planning committee with membership from Colorado State University, Utah State University, and the University of Wyoming. The major activities during this year dealt with developing the facility for the center and with staffing. Extensive remodeling was undertaken and an addition was constructed to a university house near campus. The Kellogg Center was moved to this facility in May of 1987. During this time, the project was staffed with a half-time coordinator, a full-time secretary, a portion of a faculty member's load, and five doctoral fellows. A national search was conducted which identified two senior research faculty members.

Research activities during this period centered on the teaching-learning transaction. Several projects were conceptualized and designed to fit within this framework. These projects included the investigation of (a) teaching-learning styles in tribally controlled colleges in Montana, (b) intentional learning and change, and (c) adult learning in nonformal, single episode mandatory education.

During the second year of the project, activities moved beyond the initial organization and staffing to conducting numerous research activities. These included (a) a meeting prior to the Adult Education Research Conference (AERC) to involve numerous adult education researchers in planning a research agenda for the future; (b) the initiation of a "Summer Institute" focusing on adult cognition to stimulate other adult education researchers to expand or continue their research efforts in adult learning; (c) continued training of doctoral fellows in research with one of the first group of fellows successfully completing her dissertation with data generated through the Kellogg Center; (d) a pilot study on distance education in Utah; (e) publication in a variety of journals such as *Adult Education Quarterly*, *Journal of Extension*, and *Lifelong Learning*; and presentations at state, regional, and national conferences including the National Adult Education Conference, AERC, American Indian Higher Education Conference, Northern Rocky Mountain Research Association Conference, and the Northwest Adult Education Conference. In addition, the first three postdoctorates were selected. Their research, which was conducted through the Kellogg Center, focused on spatial intelligence, social networks in two groups of low-

literate adults, and a staff development program in a Latin American university.

During the second year of the project, linkages were expanded with other parts of the university at MSU and with other programs throughout the region. Kellogg Center staff continued to serve on the board for the ICLIS project, advisory board activities involved representatives from regional universities, and regional exchanges were conducted. Kellogg Center faculty and staff also continued their involvement within the College of Education, Health, and Human Development and with other appropriate departments and offices at MSU.

Third-year activities were similar to those of the previous year. Since the need for research on adult learning is far more extensive than could be met by the resources and expertise of any one center, the Kellogg Center's role was defined as one of stimulating research by others as well as conducting original studies by the staff. A variety of individual and joint projects were organized and conducted on the campus of MSU, within the Rocky Mountain region, in other states, and in other countries. These projects involved (a) initial steps to develop an instrument to examine learning strategies used by adults in real-life learning situations, (b) an investigation of specific teaching and learning styles associated with effective learning by adult Native American students, (c) an identification of learning style profiles of Native American learners through the use of cluster analysis, (d) an exploration of the economic contribution adult learning projects make to a community, (e) the way low-level literates function within a rural community, (f) the impact of culture on the teaching-learning interaction in China, and (g) factors influencing the operation of a faculty development program in Latin America.

In addition, doctoral fellows initiated their own studies. These included (a) an investigation of the long-term impact of an intensive learning experience on adult learners, (b) the relationship of community health care and adult education, (c) a historical analysis of the impact of adult education practices by missionaries upon a native culture, (d) the influence of personality variables and reasons for participation on older, adult college students, (e) the impact of the physical environment of adult learning, and (f) the development of a cognitive profile of adult learners.

Finally, cooperative research projects were conducted with faculty from MSU and from various universities in the United States. Projects by MSU faculty related to (a) barriers to education for rural adults and (b) teacher training to integrate aspects of social responsibility into classroom instruction. Those with faculty members from Illinois, Georgia, Oklahoma, Virginia, Wisconsin, and Wyoming involved (a) the applications of so-called psychotechnologies to adult learning, (b) developing an organizing scheme for the massive amount of literature related to adult learning, (c) research on participation and persistence of adult learners, (d) an annotated bibliography on cognitive development in adulthood, (e) learning strategies of adult distance learners, and (f) adult cognition.

A major project activity was the second annual Summer Institute. The major purpose of the Kellogg Center sponsored institutes was to stimulate research on adult learning by promoting interaction among leading adult education theorists and researchers and by exposing them to the insights of experts in other fields. This institute focused on adult intelligence and featured presentations by Robert Sternberg and Claire Weinstein. The 34 institute participants were from 19 institutions throughout the nation.

Research training was provided to 10 doctoral and 5 postdoctoral fellows throughout the years. Informal training took place through self-initiated activities and collaboration in small group settings. Formal activities included weekly research meetings, seminars, workshops, conferences and institutes, and formal classes. Many of these formal activities were open to other graduate students at MSU.

Dissemination activities were a major focus during the third year of operation. The staff made 43 presentations at state, regional, national, and international conferences. They

published 21 articles and research reports in various publications. Two monographs were produced at the Kellogg Center, and the senior researchers continued to co-edit an international journal for adult basic education.

Thus, by the end of the third year, the staff at the Kellogg Center had developed numerous lines of inquiry related to adult learning and had developed an extensive communication network with major researchers in the field. With this foundation, fourth-year activities switched from a focus on building a center and defining an agenda to actually operating as a full-time center. Consequently, the activities, products, and attitudes and skills developed from this final year reflect the potential impact that a properly funded research center such as the Kellogg Center can have upon a field.

Research Activities

The final year of operations of the Kellogg project saw a broad array of research projects initiated or completed. The principles that had guided research activities in previous years were continued. Research projects on the learning processes of adults were undertaken not only to discover new insights into learning but also to develop the research skills of people involved. Although individuals were encouraged to pursue their own research interests, every effort was made to involve members of the Kellogg Center staff as a research team on all projects. Doctoral fellows worked with research professors; frequently postdoctoral fellows and graduate students were also involved. On occasions the team served merely as a sounding board to the individual researcher, but more frequently team members were involved in planning, in data gathering and analysis, or in interpretation of findings. This team approach improved the research skills of all involved, but in addition the challenge of group interaction resulted in the invention of new techniques and procedures for investigating adult learning. A number of these projects are described below.

What strategies do adults use in real-life learning activities?

Questions concerning learning strategies and their use by adults had been raised during the previous year, but inquiry into the topic began in earnest in early 1989. Learning strategies were defined as the techniques or skills that an individual elects to use in order to accomplish a learning task. They differ from learning style traits in that strategies are chosen by the learner and vary according to the learning task involved. Style tends to be relatively permanent and generally characteristic of an individual's learning activities. Learning strategies also differ significantly from what traditionally have been labeled as study skills. The conceptual framework for strategies is based on research in cognitive psychology and education, whereas study skills frequently relied on commonly accepted practice for their rationale. Also, study skills were commonly prescribed for everyone while learning strategies vary according to task objectives and personal abilities.

Five aspects of the learning process were selected as essential to the learning process and as having potential for improvement through the refinement of learning strategies. They were metacognition, metamotivation, memory, resource management, and critical thinking skills.

Metacognition refers to our knowledge and understanding of our own cognitive processes. It has often been defined as thinking about the process of thinking. Yussen (1985) credits John Flavell's 1971 publication with stimulating the interest of cognitive psychologists in metacognitive strategies of children. However, he suggests that adult cognitive development may be an even more fertile field for investigation. Whereas children are developing cognitive skills, "adulthood seems to be a period in which a large arsenal of symbolic ability and learned skills are already available and many changes take place in how adults apply these skills and ability" (Yussen, 1985, p. 271). Metacognitive strategies include the designing of learning projects according to one's learning style and the nature of the task. They are concerned with the planning, monitoring, and regulating of one's learning activities.

Metamotivation is a nebulous concept concerned with our awareness of those elements that energize and direct our learning behaviors. McCombs (1988) provided a cognitive basis for a training program in motivational learning strategies while Wlodkowski (1986) struggled with factors impacting motivation in the self-directed adult learner. Certainly, we can include among metamotivational learning strategies those that affect our desire to learn, our attention to learning tasks, and our expectancy of success.

Memory skills have received more attention than any other aspect of cognition. The problem is that most research has been based on meaningless tasks such as the pairing of nonsense syllables. Reactions by educators to such irrelevant memorizing have been so strong than any mention of the use of mnemonic devices to improve learning is often met with disgust. However, there is increasing evidence that chunking, level of processing, and other rehearsal strategies can improve the storage process. Similarly, searching techniques and external aids are useful resources in the recall process while ordering and imaging provide a whole series of valuable cognitive tools.

Resource management strategies include generalized skills such as managing time and selecting environments in a manner conducive to learning. However, they are also concerned with habits adults may have developed throughout their lifetimes. Shirk (1983), for example, discovered that many adults selected learning resources according to their availability rather than their usefulness. It is also evident that many adults hesitate to use modern sources of information because they do not understand the technology that makes them available. At the same time "imaging" through mass media is being credited with swaying public opinion and consumer practices. Strategies for the identification of the most appropriate resources, critical evaluation and use of such resources, and arranging time and environments for learning can make learning more effective.

Critical thinking is another aspect of the learning process that is recognized as essential but difficult to define. Brookfield (1988) and Meyers (1987) are but two of the many who recently have tried to explicate the skills and processes involved in such thinking. The definition used in this project is that critical thinking is a parallel process by which individuals analyze given information in a contextually specific situation and create new ideas, concepts, or constructs based on their analysis. Strategies likely to improve critical thinking in adults seem to fall into four categories: recognizing and testing assumptions, assessing contextual parameters, generating and testing alternatives, and conditional acceptance of concepts and conclusions.

Debates over the transferability of learning skills designed for academic environments to real-world situations moved the Kellogg Center staff to use adult "real-life" learning situations as the context for learning strategy assessment. A series of scenarios that necessitate various types and levels of learning have been devised. Questions assessing how likely an individual is to use specific strategies to deal with the learning problem are currently being tested.

Can a study group have a lasting impact on participants and their community?

This project was organized and directed by Jan Counter, a doctoral fellow at the Center. She was assisted by Lynn Paul, another doctoral fellow, and Gary Conti, a research professor. Interest in this question grew out of Jan's dissertation research which involved a historical review of a project called The Montana Study. The major methodology used in the study depended on oral histories elicited from eight individuals who had been active in a study group over 40 years earlier.

In 1943 the Montana State University System had launched an experiment to stabilize small, rural communities in Montana. Funded by a grant from the Rockefeller Foundation, the project leaders organized study groups in 13 Montana communities to research and analyze the community's history, resources, and future potential. Upon completion of their 10-week study program, the group in

Conrad, Montana, decided to form an action group to explore ways to make their community a better place to live. During the next 40 years the group involved themselves in numerous projects that included a nursing home, retirement apartment complex, senior center, swimming pool, irrigation system, and high school.

This project determined that The Montana Study had helped the Conrad group focus on the important values and tradition of the community and thus build a "community of memories." In this way they identified the values and traditions which exemplified their community. These were traditions of (a) solving their own problems, (b) establishing true friendships, (c) being visionary yet knowing the proper values of life, (d) accepting the modern but measuring it in light of tradition, and (e) remembering to guard against exploitation from outside the community. These themes helped the people work together through the years. As one of the participants summed it up: "A community is working together. The way the overall community has been able to work, even though we are individuals or are in small focus groups, is our ability to come together and discuss."

Can retired citizens be empowered, and, if so, will they re-engage in community and societal reform?

During his tenure as a Kellogg Postdoctoral Fellow at the Center for Adult Learning Research, Mark Walsh designed a study to investigate retired citizens' feelings of alienation and their interest in the important societal issues of present day U.S. society. Mark is basing his study on an assumption that many of these older citizens are very interested in today's socio-cultural issues and that many, once given an empowerment experience, will take an active part in social renewal.

The design of this study is based on Paulo Freire's principles of conscientization or the process in which men and women, as knowing subjects, become more aware of the socio-cultural reality that is shaping their lives and of their ability to transform that reality. The first step in this process is to help retired citizens identify the issues they see as shaping modern society. A questionnaire and a series of drawings have been created for this purpose. Through their responses to the questionnaire and their discussions of the issues posed by the drawings, Mark believes participants will become more conscious of the world they are facing. Once so involved, those interested in doing so will be engaged in a participatory research experience related to issues of their major concern. Through this experience they will recognize their continued capacity to transform aspects of society even as retired citizens.

Although this study was designed during the Kellogg Project, there was insufficient time to complete it. It is the intention of those involved to complete the project when sufficient time and support are available. Examples of several of the societal issue drawings are provided in the appendix.

Where does literacy fit in the life of the low-literate adult?

While much has been written on the "crisis" of illiteracy and the importance of developing a literate population, little is known about the values and priorities placed on literacy by those with few literacy skills. The purpose of a research project conducted by Linda Ziegahn was to understand better the perspective of low-literate adults on the role of literacy in their lives.

Working from the premise that one's perspective on literacy can be studied only in the context of one's daily environment, Linda designed a study in which she focused on people with low literacy skills living in a community in western Montana. The community was comprised of a balance of white and Native American adults who, because of the relative non-technical industries of the area, were able to survive with low levels of literacy skills. A total of 27 such adults were interviewed in-depth and numerous observations were made of life in that community.

Linda concluded that there were three major traits or forces that affected the literacy

perspective of the people interviewed. One was the person's view of self as learner. Dimensions of self which affected this view were (a) self-definition or personality factors such as values and openness, (b) relationships with others, (c) disposition toward learning, (d) literacy abilities, and (e) aspirations which the individuals feel will best be attained by learning to read and write. A second force was the literacy context of the individual. This included two factors. One was the materials that the low-literate actually encountered; the other was the time period in which literacy become relevant to the individual. The third major factor in the formation of literacy perspective was the response the individual made in the literacy context. This response could be affective such as anger or enthusiastic challenge. It could be interpretive in that the individual tried to make sense of past experiences with literacy and get direction for the future. Action responses, such as further learning, were also possible.

Five different perspectives on literacy emerged. One seemed to say: "Literacy is OK, but it's not for me--it's for others." A second could be phrased: "Literacy is part of a relationship I want to change." For such people learning literacy skills was secondary to changing relationships. A third perspective was characterized as: "Literacy is one more thing I'll never be able to get." The surrounding social environment of these individuals seemed to preclude any exploration of the role of literacy in their lives. A fourth group had a different perspective: "Literacy is critical for everything I want to do--but on my own terms." These adults wanted control over the learning content and environment. The fifth perspective was more positive: "Learning to read is easier than before, and fun; I can see progress and so can my family."

Linda concluded that "literacy may be one of many means toward an end, and we cannot assume a common perspective on either the nature or worth of literacy itself. It is only through getting to know low-literate learners better that we will know what kinds of goals they seek to achieve, and what they feel should be learned towards these ends." A full report on this study can be found in the Kellogg Center monograph entitled *Adult Learning in the Community*.

What is lifelong learning like in Livingston, Montana?

In this study John Shirk continued a longtime interests of his in examining the resources used by adults in self-planned learning projects. However he added an extra dimension to previous studies done in Houston, Texas, and Port Townsend, Washington, by examining in this study the financial costs and benefits of formal and informal learning.

John patterned his interviews on the model developed by Tough and used Lewin's theories to develop a conceptual framework for the interpretation of collected data. Over 60 adults were randomly selected from the Livingston telephone directory and personally interviewed. John asked not only about their learning activities during the past year but also about the resources used, their satisfaction with each resource, their learning plans for the future, and the amount of money spent or earned as a direct result of the learning activities.

Analyses of these interviews revealed numerous internal and external forces influencing the lives and the learning of these people. Positive forces included supportive family and work environments, recognition of opportune moments, new relationships, promotions, and building on past successes. These were matched by internal forces such as the will to succeed, to survive, and to make the best of any situation. However, when external negative forces such as prejudice or politics were stronger than positive valences, change or social locomotion was limited.

As in previous studies, John found people tended to use their own self, their own books and magazines, friends, and family much more as learning resources than media, libraries, paid teachers, or librarians. As before, when asked to rate the value of learning resources, people ranked teachers, librarians, and other people much higher than books, magazines, media, or even their own

selves.

Questions regarding the economic costs and benefits of learning produced some interesting results. In designing his questionnaire, John had put $150 or more as his highest category. However, many of those interviewed estimated they spent thousands of dollars on learning projects. In addition it became very difficult to distinguish money spent on learning activities from money spent on projects that grew out of learning activities. Some developed expensive hobbies, remodeled homes, or made investments as outgrowths of learning projects. As a very conservative estimate, john concluded that the average learner spent at least $500 a year on learning activities.

Summarizing his study, John insisted that "a strong case can be made for creating an environment for lifelong learning in any community. Encouraging inquiring minds at an early age should be the goal not only of education institutions; every arena of community life, homes, churches, businesses, libraries, museums, theaters, fire halls, hospitals, government agencies, and service organizations should make concerted efforts to become part of this process. Not only will the social, cultural, political, and psychological climates be strengthened but economic health of the community will be enhanced as well." A full report on this study can be found in the Kellogg Center monograph entitled *Adult Learning in the Community*.

Can a model be developed to demonstrate that investment in the capital assets of adults will improve economic development?

As early as 1961, T. W. Schultz argued that the benefits of investing in the capital assets of individuals may have a greater economic impact than the production of goods and services. In a postdoctoral study done in conjunction with the Center for Adult Learning, Bernie Moore proposed that adult continuing education programs are the methods for carrying out these capital investments. For example, health and stress management courses could reduce health care cost and increase productivity. Job training and development could attract new businesses to an area and improve job performance. Personal improvement and community development programs could improve attract tourist as well as improve quality of life for local inhabitants. The question posed by Bernie was whether an analysis of secondary source data from 159 Georgia counties could be used to demonstrate the validity of the contention that investing in the capital assets of individuals will benefit a county economically.

Both Pearson correlations and discriminant analysis procedures were used to analyze several traditional human capital variables; namely, youth reading and math scores, the cost of education per pupil, the percent of population with less than eight years of schooling, high school dropout rate, adult per capita income, county population, and the number of adults employed. Two continuing education variables were added: the number of post-secondary vocational education student per 1,000 population and the number of occupational continuing education students in the university system.

Correlation procedures produced some confusing results. As educational costs rose, the dropout rate decreased but so did reading and math scores. Percent with less than 8 years of schooling correlated negatively with population growth, income, and percent employed as might be expected; however, the number in vocational education showed little correlation to any of these factors.

Discriminant analysis procedures produced some encouraging results. Continuing education contributed strongly to per capita income as did median years of education and dropout rate. Variables related most strongly to employment were median years of education, dropout rate, and per capita income. Predictive discriminant analysis was used to examine the question of whethr an individual county can be assigned to a "have" or "have not" group based on the discriminating power of the remaining variables. Dropout rate, employment, per capita income, and median years of schooling did seem to have potential for such prediction.

Bernie concluded that it did seem reasonable that secondary data from counties could prove useful in examining Schultz's model of human capital investments. It was also encouraging to confirm the importance of variables such as adult continuing education for studying human capital investments. A full report of this study can be found in the Kellogg Center monograph entitled *Cultural Influences on Adult Learning*.

How do cultural differences in regard to selfhood among citizens of China and the United States affect learning and teaching?

Dan Pratt of the University of British Columbia used support from the Kellogg Center for Adult Learning Research to continue his research on how cultural differences between the people of China and of the United States affect teaching and learning. He based this segment of his research on the principle that "in all cultures, people come to know their world based on a particular construction of self." The study led to the development of a model "that considers the interaction of cultural values, social norms, political ideologies, and psychological attributes which affect people's identity and sense of self."

Dan's model begins with an examination of cultural values and traditions and the affect they have on both the self and the social norms and political ideologies of a society. The Chinese culture anchors an investigation of selfhood in the individual's relationships and role within the family. The high regard for autonomy within the American culture produces a different perspective, namely, the rights of the individual. Thus, in Chinese society identity and self-esteem are intimately tied to the Chinese family. American society, on the other hand, promotes the development of a sense of personal autonomy and self-sufficiency which often distances the individual from the family. Dan goes on to show how this produces social norm and political ideologies that have a deep affect on the psychological attributes and view of self in the two cultures.

What implications does this have for adult education? The andragogical model popularized by Knowles for the education of adults in the United States is based on a commitment to individual autonomy and the right to choose. Such a model may not be suited in a culture in which students are not expected to be outspoken or autonomous. Similarly, the historical role model of the teacher in Chinese society has been one of an exemplar of virtues and attitudes that the learner is to imitate. This differs greatly from the "facilitator" role advocated in models of American adult education. Even basic attitudes toward learning may differ for the notion of critical questioning and examination of core assumptions advocated in American education seems to violate the Chinese notion of learning as additive and fine-tuning of what is already known.

Dan summarized his study by saying, "What we assimilate and construct as characteristics of self or as conceptions of adult education are primarily products of some relational configuration which includes cultural, social, political, and psychological factors. However, the way in which we acknowledge those factors and the importance attributed to them in understanding self and its implications for adult education differ significantly from American to Chinese cultures." A full report on this study can be found in the Kellogg Center monograph entitled *Cultural Influences on Adult Learning*.

How do the constituents of culture interact with the teaching/learning transaction?

Betty Dennis, postdoctoral fellow from the Nursing Faculty of North Carolina Central University, has designed a study to examine the effects of culture on learning. The research design used was ethnographic in nature employing detailed logs together with structured and unstructured interviews of two groups of Black students: one from North Carolina Central University and the other from the University of Dar es Salaam in Tanzania. Because Betty has taught at both universities, she was able to observe differen-

ces in two similar groups, one representing a cultural minority while the other is part of the cultural majority.

The questions guiding this study relate to the school environment and especially to reactions to its ethnic composition, to the teachers and students' perceptions of good and bad teaching, to the students, and to the learning environment. The interaction of students with one another and with teachers is of special concern to Betty for the effect of different methodologies, such as individualized instruction or group activities, could be strongly influenced by such cultural factors.

Although Betty was able to plan this piece of research on learning before the Kellogg project ended, the closing of the University of Dar es Salaam because of civil unrest delayed her gathering of data. The study will be completed and reported elsewhere.

On-Going Research at the Center

Adult Learning Strategies

The Self Knowledge Inventory of Lifelong Learning Strategies (SKILLS) has been developed and is in the final stages of field testing. This inventory assesses the learning strategies used by adults in real-life learning activities. Learning strategies are the techniques or skills one elects to use when engaging in a learning task. The SKILLS instrument examines five areas of such strategies: metacognition, metamotivation, memory, critical thinking, and resource management.

After the analysis of field test data and final revisions of the SKILLS instrument are completed (estimate: December, 1990), norms will be developed for various groups of adult learners such as Native Americans, elderly, and low-level literates. Differences between efficient and inefficient learners will also be examined. Training programs will be developed and tested for the five strategy areas and for various groups of adult learners.

Teaching and Learning in the Native American Community

Continuing investigation into effective teaching styles and learning approaches for Indian people is being pursued. Further expansion of the data base on teaching styles in tribal colleges and learning preferences of Native Americans is anticipated. An instrument measuring effective teaching characteristics will be developed. Plans are to expand this research to all 26 tribal colleges in the United States. Training programs based on this research will be expanded and delivered across the country.

Summer Institute

The third annual Summer Institute on Adult Learning was held at Montana State University from July 28 to August 1, 1989. The theme of this Institute was the affect the social environment on adult learning. Major presenters were Myles Horton, distinguished founder of the Highlander Research and Education Center, Peter McLaren, Associate Director of the Center for Education and Cultural Studies at Miami University, and Janine Pease-Windy Boy, President of Little Big Horn Community College located on the Crow Indian Reservation of Montana. Invited participants for the Institute were 22 adult education leaders from the United States and Canada plus 6 members of the Kellogg Center staff.

The first day of the institute was held on Montana State University campus and was open to the university staff, students, and general public. Peter McLarin entitled his address "Radical Pedagogy: Constructing an Arch of Social Dreaming and a Doorway to Hope." He explained how *critical* educators "have managed to counter elitist, racist, and sexist assumptions in dominant forms of teaching and curricula." Lucy Phenix, a consultant with the Highlander Center, shared personal insights concerning the affect of one's life situations on learning. Many of her remarks related to situations she encountered while producing the award-winning movie, *You've Got to Move*, which documented the impact of Highlander educational programs on four individuals. Janine Pease-Windy Boy described the rewards and the difficulties of integrating the cultural heritage of the Crow Indians into a the curricula of a modern tribal

college. Those present responded enthusiastically to her sharing of positive examples of how culture and custom can improve adult learning situations. These formal presentations were capped by responses from two of the institute participants, Lloyd Korhonen and Chere Coggins Gibson, professors of adult education at the Universities of Oklahoma and Wisconsin. They tied the content of the earlier presentations to trends in the field of adult education.

The rest of the Institute was designed to encourage sharing and interaction among the participants. Individuals offered prepared remarks: McLaren continued his call for critical approaches to pedagogy; Helen Lewis described her experiences with educational programs in an Appalachian community; Dan Pratt presented the findings of his study on Chinese vs American perceptions regarding learning. The Kellogg Center staff presented their insights into learning strategies used by adults in real-life situations and shared a draft version of their assessment device, Self Knowledge Inventory of Lifelong Learning Strategies. The Institute participants led in particular by Bill McKeachie of the University of Michigan critiqued the inventory. Small groups formed both formally and informally to share insights and discuss action projects that could develop among leaders in the field of adult education to lead to a better understanding of the impact of the social environment on adult learning. Initial plans for several research projects on topics related to the social environment and adult learning also flowed from these discussions.

A very special time during this part of the Institute was the morning in which Myles Horton shared a life-time of insights into the relationship between one's social environment and learning. His fifty plus years of promoting learning and problem solving as a means of developing labor union leaders, civil rights activists, environmental defenders, and community leaders was an inspiration to all. He responded to questions ranging from international social issues to specific practices in the classroom. However, it was his gumption, his courage, his confidence that inspired all. Hehe concluded, "Anything worth doing takes a lifetime to do....I would like to judge myself not by what I have done but by what I have helped other people to learn to do. That would be my criteria of a successful life."

Unsolicited comments of participants reflect the value of this Summer Institute on Adult Learning. "A truly excellent conference does not end on the last day. It has an afterlife; it echoes; it reverberates--and it has. In my own thinking, I had become stalled on several points, and between Peter and Myles I have gained new intellectual space. The contrast between Myles and Peter produced the kind of intellectual electricity which drives mental motors. Janine Windy Boy's contribution helped nail it to the door of reality" (Hal Beder, Associate Dean, Graduate School of Education, Rutgers). "Just a note to say how much I enjoyed the Kellogg Meeting and how helpful Myles' and Peter's presence was to my work. The conference planners all deserve Honorary Ph.D's in Conference Planning (Allan Quigley, Assistant Professor, Penn State). "That was one of the nicest trips we've ever had. We really appreciated the invitation and the chance to be with you and with the other participants in the Summer Institute" (Wilbert McKeachie, Professor, University of Michigan).

As with previous institutes, the 1989 Summer Institute produced outcomes that extended well beyond the immediate time of the meeting. Myles Horton extended his stay in Montana to meet with several groups. The day after the institute concluded, Myles spoke to a large gathering of students and responded to their questions about education in today's world. In the evening, he met at the Kellogg Center with a group of tribal elders and educators from the Crow Reservation. Horton also visited Rocky Boy Indian Reservation in northern Montana where he interacted with the tribal council, with Indian educators, and with various other groups. His attentive listening to the concerns of these people and thoughtful sharing of his insights with them earned the respect and gratitude of many Montanans.

The three Summer Institutes for Adult

Educators were designed with the hope of affecting the entire field of adult education. The ultimate purpose was to revitalize the conceptual development and research being given to the topic of adult learning. The four aspects of the institutes through which this was to be accomplished were (a) inviting experts outside the field of adult education to address major issues related to adult learning, (b) involving a significant percentage of leaders in adult education in the intensive interaction and study of an institute, (c) developing networks among participants that would spur continued intellectual development, and (d) stimulating research, conceptual development, and teaching related to adult learning.

There is ample evidence that the institutes did have the intended affect on the field of adult education. The publications and research efforts of participants show a marked growth in their attention to learning issues. Monographs produced from summer institute presentations are being cited in publications as varied as newsletters, journals, and books. Institute presenters are being invited to address other adult education groups. Joint projects between participants such as Phyllis Cunningham of Northern Illinois and Janine Windy Boy of Little Bighorn College are affecting the education of graduate students. Adult learning is taking a more central role in the field of adult education.

Training and Research Assistance

Throughout the history of the Kellogg Project the Center for Adult Learning Research directed major efforts toward the training of those interested in various facets of adult learning. Such training was accomplished in several ways. Many of the research projects of the Kellogg Center involved a combination of research professors, doctoral fellows, post-doctoral fellows from other institutions of higher education, and graduate students. Such associations encouraged the interchange of ideas both on the subject matter under consideration and on research procedures. While such collaborative efforts may have been less efficient time wise, they were quite productive in the development of knowledge, skills, and attitudes regarding adult learning and techniques suited to further inquiry on educational matters.

Doctoral fellows benefited especially from the collaborative approach taken at the Center for Adult Learning Research. Not only were they involved in groups research projects but they also helped plan and participated in summer institutes. These gatherings allowed them to interact and network with adult education professors and educational leaders from around the country. Most of the doctoral fellows also took advantage of opportunities to attend local, state, and national conferences. An examination of lists of publications and presentations contained in the various reports of the project indicates their professional productivity. Listed below are the 12 individuals who held Kellogg Doctoral Fellowships with the Center for Adult Learning Research and their dates of graduation or current status as students.

- Patricia Lundgren, Ed.D. - Winter, 1988
- Barbara White, Ed.D. - Spring, 1988
- Connie Blackwood, Ed.D. - Summer, 1988
- Barbara Storm, Ed.D. - Spring, 1990
- Betty White, Ed.D. - Spring, 1990
- Rodney Fulton, M.Ed. - Spring, 1990
- John Rogers, ABD
- Mike Hill, currently enrolled doctoral student
- Lynn Paul, currently enrolled doctoral student
- Nate St.Pierre, currently enrolled doctoral student
- Frank Rowland, currently enrolled doctoral student
- Jan Counter, currently enrolled doctoral student

The involvement of post-doctoral fellows in the project was also quite effective. Eight of these professors spent varying amounts of time at the Kellogg Center for the purpose of conceptualizing, designing, conducting, or analyzing research projects. Most had limited experience with research projects but were anxious to improve their skills and to find answers to problems that had concerned them in their professional practice. They in turn shared their insights into practice with the

Montana State University staff and students by conducting seminars and classes and through less formal meetings. These Kellogg Post-doctoral Fellows together with their research projects are listed below.

- Linda Ziegahn, Syracuse University: Low-level literates in a community setting
- Daniel Pratt, University of British Columbia: A comparison of Chinese and American attitudes toward learning
- John Shirk, Northwestern Bible College, Minneapolis, MN: Adult learning projects and their economic impact
- Bernie Moore, University of Georgia: Economic impact of continuing education
- Sharon LaPierre, Denver: Spacial reasoning in adults
- S. Gregory Bowes, University of New Mexico: A faculty development program in a Latin American University
- Betty Dennis, North Carolina Central University: The dynamics of culture in a teaching/learning environment: North Carolina and Tanzania
- Mark Walsh, Texas A&I University: Empowerment of the elderly

Many other adult education leaders increased their awareness of adult learning issues and research procedures through their involvement in the institutes conducted during the summers of 1987, 1988, and 1989. The combination of exposure to educational leaders, such as Wilbert McKeachie, Robert Sternberg, and Myles Horton, and the interaction with one another in a retreat setting together with year-long networking that evolved from the institute experience has led to research activities, conceptual development, and integration of new insights into the teaching of participants.

Listed below are 14 professors of adult education who participated in at least 2 summer institutes. Together with the 8 individuals listed above, this total of 22 postdoctoral fellows comprises nearly 10% of the full-time professors of adult education. The professional development of this group of leaders has had a definite effect on the total field.

- Bart Beaudin, Colorado State University
- Rosemary Caffarella, Virginia Commonwealth University
- Ron Cervero, University of Georgia
- Michael Day, University of Wyoming
- Chere Coggins Gibson, University of Wisconsin-Madison
- David Gueulette, Northern Illinois University
- Lloyd Korhonen, University of Oklahoma
- Helen Lewis, Highlander Research and Education Center
- Linda Lewis, University of Connecticut
- Larry Martin, University of Wisconsin-Milwaukee
- Sharan Merriam, University of Georgia
- Dan Pratt, University of British Columbia
- Don Seaman, Texas A&M University
- Burton Sisco, University of Wyoming

During the duration of the Kellogg Project at Montana State University, the faculty supported by the project were also involved in the development of a graduate program in adult education. This was in accord with the project's objective of strengthening adult education training in the region and of the university's commitment to maintain such training after completion of the project. In addition, it enabled the project staff to influence a much broader group of students and to ensure a lasting impact of the project. As an indication of the involvement of Kellogg Center faculty in the on-going program of the Department of Education, their teaching load for the year 1990 is presented below.

Classes taught during 1990 by Robert A. Fellenz:

Winter Quarter
EDLD 500 - Seminar, Research
EDCI 544 - Advanced History & Phil. of Education
EDLD 570, 575, 576, 590, 690 - 44 hours
Spring Quarter
EDLD 531 - Controversies in Adult Education
EDLD 606 - Doctoral Research
EDLD 570, 576, 590, 690 - 34 hours
Summer
EDLD 504 - Adult Learning
EDLD 606 - Doctoral Research
EDLD 570, 575, 576, 690 - 24 hours
Fall Quarter

EDLD 502 - Foundations of Higher Education
EDLD 504 - Adult Learning
EDLD 570 to 690

Classes taught during 1990 by Gary J. Conti:

Winter Quarter
EDLD 501 - Foundations of Adult Education
EDCI 506 - Research Design
EDLD 570, 576, 690
Spring Quarter
EDLD 522 - Methods of Teaching Adults
EDLD 500 - Seminar, Research
EDLD 570, 576, 690
Summer
EDCI 506 - Research Design
EDLD 570, 690
Fall Quarter
EDCI 461 - Introduction to Adult Education
EDLD 500 - Seminar, Research
EDLD 500 - Seminar, Research
EDLD 500 - Seminar, Research
EDLD 570, 690

Student advisement is another way in which faculty extend their influence on the formation of students. Such advisement includes academic and career counseling as well as the less formal interaction that is such an important part of most students' development. Graduate student advisement is best exemplified in the interaction between a graduate student and the student's major professor. This is where a person's professional training program is individualized, where plans of study for comprehensive exams are developed, and where research or study projects are planned. The following doctoral students completed programs under the guidance of the Kellogg Center faculty during 1989 and 1990.

- Beverly Atwell
- Charles Ericksen
- Elizabeth McNamer
- Barbara Storm
- Anne Teppo
- Elizabeth White

The following masters degree students completed programs under the guidance of the Kellogg Center faculty during 1989 and 1990.

- Brenden Babcock
- Patricia Miller
- Frank Rowland
- Nate St. Pierre
- Jeff Shada
- Doreen Young Bear

Research Assistance at MSU

Throughout the year, the Kellogg Center functioned as a research center for students and faculty at MSU as well as for researchers outside of the university. As the availability of research assistance became known, numerous faculty members and graduate students within the College of Education, Health, and Human Development came to the center. Most of the students did not know the faculty members or the staff but had heard informally about the types of research design, data management, and statistical analysis help that the staff members were willing to provide. Some were referred by their faculty advisor, and in a few incidences the faculty members and students came to the center together. Several faculty members also began to use the facilities and staff at the center to assist them in their own research.

Technical assistance was provided to graduate students and faculty for several projects. These diverse projects consisted of topics such as (a) the characteristics of identified critical thinkers in a university setting; (b) a needs assessment for the Native American Studies Department at the university; (c) the relationship between children's perceptions of conflict and control in their family environment, their self-esteem, and their classroom behavior; (d) the development of orientation materials specifically designed for Native American students entering the university; (f) a salary survey of licensed child care center staff in the state and the development of fact sheets for state legislators; (g) the relationship of middle school grouping patterns to student academic achievement; (h) the influence of out-of-state adolescents on local adolescent's attitudes toward drugs, alcohol, and sex; (i) child abuse potential and rival families; (j) quality dimensions of

licensed center-based day care; (k) parent behaviors related to social competency of preschool children; (l) the qualitative evaluation of a university wellness program; (m) factors influencing rural family life; (n) mathematics readiness for sixth graders; and (o) community partnerships for substance abuse prevention.

Those involved in these projects were asked to express their personal feelings concerning the Kellogg Center and its usefulness to them in conducting their research. Students wrote the following types of comments:

- The Kellogg Center was very valuable to me. In fact, I doubt that I would have completed my thesis without their help....They made the project interesting, manageable and fun. Their knowledge and professional support helped me through a particularly difficult time. There was no one else on campus that had the knowledge *and* interest to help me. I was floundering, and the Kellogg Center was the life saver. I could never say enough good about their support.
- As a graduate student, the Kellogg Center afforded me the opportunity for a serious, creative environment to exchange ideas and explore research avenues. The library of printed resources was invaluable to my studies in the area of critical thinking. The Center's staff were mentors and guides to the development and sharing of current though on the topic. The computer resource data base extended resource sharing to experts across the nation. The summer institute added an important component of insight through the presentations of current experts and nationally known figures important to the field of adult education.
- The Kellogg Center provided invaluable guidance and assistance with the research, from review of the survey questions to data analysis. The finished product is a direct result of their participation and resulted in materials sought by other Universities and admissions offices.
- The Kellogg Center staff played an integral part in enabling me as a researcher to develop fact sheets for distribution to Montana legislators.
- Without the assistance of the Kellogg Center programs, I would be experiencing little progress with my research....The Kellogg Center is designed to assist adult learners. I feel that the Center is available when needed, not just 8-4, five days a week. I have utilized the Kellogg Center staff on Thanksgiving night. Dr. Gary Conti invited me to his home to assist me with my research.
- The Kellogg Center was instrumental in the success of this project, and I was successful due to the help I received. Certainly the sophisticated computerware was a bonus, but the dedication and time offered by both Dr. Conti and Dr. Fellenz were crucial to my learning. There was *always* someone there to assist when I would "pop in" with a frantic question; I could count on them. The Kellogg Center provided incentive for research, and it will be missed on our campus.

In addition to regular and informal expressions of appreciation of the research services available through the Kellogg Center for their students and for their own research, some faculty members also wrote their personal feelings about the center and its usefulness to them and their students. They wrote:

- The Kellogg Center has been an outstanding resource for our students. The staff has been highly accessible (which is unfortunately unusual on a college campus). More importantly, they approach research with a critical enthusiasm which is infectious. Kellogg staff were perceived as excited about the students' projects, which helped generate and sustain the student's excitement. Being adult learners, these students had much going on in their lives. Thesis research is not required in their program, and the temptation to forego it is powerful. Availability of Kellogg Center assistance not only facilitated their involvement in research, in at least one case I believe it was essential to completion of the project. (Thank You!)
- For students, they provided assistance in statistical analyses as well as the "what if", "what about", "what next" kinds of questions. They were incredibly generous with their

time and the students always returned from meetings with them enthused about the research process.

- For myself, when I would enter the facility I was always struck at how the atmosphere and ambiance created by the building and furnishings contributed to my productivity....As a junior level faculty member, I was grateful that the resource existed for students to work at Kellogg. I frankly do not have the time or computer expertise to assist the students at the level the Kellogg staff was able to. Them doing their job at the Kellogg Center "freed" me to continue doing other work. Often material provided to my graduate students would challenge and spark learning for me.

Thus, several graduate students and faculty members took the initiative in using the Kellogg Center to help them in their research. They clearly saw it as an invaluable resource for conducting research on a wide variety of topics. Having experienced the benefits of the availability of such a center, they were upset that the support for the center is ending so that it will not be available in the same form for future researchers in need of assistance.

- As a graduate student and current faculty member at MSU, I was deeply disappointed that the funding of the Kellogg Center was eliminated. A tremendous amount of learning and research was evolving at the Center. Students were eager to be involved in projects that made a difference to Montanans. And, they were eager to learn from the Center's professors, who themselves represented excellence in research, study, and teaching. The Center's professionals were deeply in touch with this state's large minority populations and were teaching others to be sensitive to issues such as literacy through their actions and examples. Perhaps in the future, there will be continued a Kellogg Center in Montana that contributes as much and extends as far to the corners of the state as the MSU Center did.
- As I continue my studies in the Winter of 1991, I will be involved in yet another research project. This study is designed in response to the need for sound research in the arena of Tribally Controlled Colleges as called for in a two year study by the Carnegie Foundation for the Advancement of Teaching. Unfortunately the Kellogg Center is no longer available for the kind of research assistance I will require--research that is timely and of great importance especially in a state that houses seven tribal colleges and at a University struggling to meet the needs of our Native American students.
- I first heard about the Kellogg staff and the Kellogg Center from other graduate students at Montana State University. They encouraged me to take graduate research classes from them and spoke highly of their willingness to help graduate students as they worked ont the research project. I heard "rumors" that the funding for the Kellogg Center had been cut and that the assistance they could now offer would no longer be available. When I contacted them and learned that the "rumors" were in fact true, I felt an error in judgement had been made. The Kellogg Center provided a valuable service to researchers within MSU as well as those involved in adult-related research outside the University. While an effort has been made to continue offering assistance to educators/researchers, the availability of services has no doubt diminished. While there is help available elsewhere on campus to researchers/educators, the caliber of the staff and the quality of the services--especially in the area of naturalistic inquiry--is less than that offered by those associated with the Kellogg Center.
- In my mind, there can be no question that the money spend on the Kellogg Project was well spent. If all factions of public service facilitated the needs of their patrons as well as the Kellogg Center, the educational services in our state would be second to none.
- I personally feel a tragic loss when the Kellogg Center failed to be refunded by the Foundation. It was well on its way in achieving all of the things that were goals specified in the funding proposal and was fulfilling a unique role in adult education.

Perhaps the only good news at this point is the fact that both Drs. Fellenz and Conti are still at Montana State University and both still have personal commitments to the original proposal and philosophy. Although the Foundation had been generous in funding the Center for five years, the research on change is very clear, and it does take more than five years for a new project to have a measurable impact.

Dissemination Efforts

A major effort to disseminate research and information produced through the efforts of the Kellogg Center for Adult Learning Research was the publication of a series of monographs. The content of the monographs reflected research conducted by the Kellogg Center staff or fellows or presentations delivered at Kellogg Center sponsored training sessions. All monographs were mailed to a broad selection of adult and community education specialists in an effort to affect research and conceptual development in the area of adult learning. To ensure their availability to an even broader range of scholars and practitioners, these monographs were also incorporated into the information system of the ERIC Clearinghouse on Adult, Career, and Vocational Education at Ohio State University. A short description of each monograph is provided below; feedback regarding their acceptance by people in the field is also provided.

Social Environment and Adult Learning (1990) is a monograph dedicated to an outstanding adult educator, Myles Horton. Shortly before his death, Horton spent a week with a group of adult educators examining how the social environment affects adult learning. In the monograph he shares some of the insights he derived from more than a half century of work at the Highlander Research and Education Center. "I would like to judge myself not by what I have done but by what I have helped other people to learn to do. That would be my criteria of a successful life" is his conclusion. Segments from a Bill Moyers' interview of Horton augment his comments. Two addresses by Peter McLaren provide a critical review of educational approaches of today. In "Radical Pedagogy: Constructing an Arch of Social Dreaming and a Doorway to Hope," McLaren describes an approach to schooling designed to empower students and transform the social order in the interests of justice and equality. From a culturally diverse viewpoint, Janine Pease-Windy Boy, President of Little Big Horn Community College describes "Learning in the Social Environment: A Crow Perspective." Her reflections on the process the Crow Indians went through to integrate their culture into a modern educational institution provide exceptional insight into the process of integrating culture into education.

Cultural Influences on Adult Learning (1990) contains five reports of original research examining adult learning in specific cultural settings. "Conrad, Montana: A Community of Memories" reports on a fascinating group of adults who for over 40 years have been active in building a better community for their friends, for their relatives, and for themselves. This research was organized by Jan Counter, a doctoral fellow at the Center. Jan was assisted by Lynn Paul and Gary Conti. "Investing in the Capital Assets of Adults" also examined learning in a rural setting, but this was in the South. Using secondary data sources, Allen (Bernie) Moore assessed the broad economic implications for a community of its citizens' participation in educational activities. "Contrasting Foundations for Learning and Teaching: Selfhood in China and the United States" describes Dan Pratt's exploration of values and norms flowing from various cultural, social, and historical influences. He derived his data from direct interaction with a variety of people in Canada, the United States, and China. "Educational Barriers to Rural Adults" focuses on impediments to educational participation for adult learners in states of our rural Northwest. Stan Easton used a modified Delphi survey to identify these barriers and to determine changes in policy and practice essential to improving access to education for adults in rural areas. "Development and Utilization of Professional Literature: A Survey of Adult Education

Professors" examines the creation of knowledge in an organizational culture. In this study, Ralph Brockett used traditional survey research techniques to assess the reading and writing patterns of professors of adult education.

Adult Learning in the Community (1990) describes two studies which reflect a growing concern to examine learning as it actually occurs rather than as theoreticians envision it happening and to do so through naturalistic research designs rather than rationalistic manipulations. In the first study Linda Ziegahn describes "The Formation of Literacy Perspective." She attempts to answer the question: Given all the concerns and responsibilities of adult life, where does literacy fit in? Her answer is derived from a series of interviews with low-literate adults living in a culturally mixed, "middle" literate community. The second study describes "Lifelong Learning in Livingston, Montana." In it John Shirk examines the learning projects and information sources of a randomly selected group of adults and uses Lewin's force field theory to describe the affect of learning on their lives. He also attempted to define the learning networks that develop within a community and to assess the economic costs and benefits that flow from adult learning projects.

Intelligence and Adult Learning (1990) contains presentations of Robert Sternberg and Claire Weinstein at the second Summer Institute on Adult Learning. In "Understanding Adult Intelligence," Sternberg synopsized his triarchic theory of intelligence and applies it to adult learning. He definitely lays to rest the old saw, "Intelligence is what an intelligence test measures." His second presentation on "Real Life vs. Academic Problem Solving" provides some excellent principles for the revision of curriculum in training programs or class rooms. His numerous examples help make practical applications more evident. Claire Weinstein's comments provide a neat counterpoint to Sternberg theories. In "Strategies and Learning," she describes efforts to assess and teach learning strategies to young adults. Her Learning and Study Strategies Inventory (LASSI) yields scores in 10 different areas that give students an idea of where their learning strategy strengths and weaknesses lie.

Learning and Reality: Reflections on Trends in Adult Learning (1990) was the result of a unique collaborative effort between the ERIC Clearinghouse on Adult, Career, and Vocational Education and the Kellogg Center for Adult Learning Research. It was written by Bob Fellenz and Gary Conti of the Kellogg Center for Adult Learning Research but was reviewed and produced by the ERIC Clearinghouse. The cover bears the insignia of both centers. The major contention of the monograph is that the focus of the field has shifted from adult *education* to adult *learning*. After reviewing recent literature and developments in adult learning both from the perspective of cognitive psychology and the perspective of the social environment, the authors challenge commonly accepted assumptions with four conclusions. First, the image of the adult learner should be one of an *empowered learner*. Second, the role of the teacher as a facilitator must be interpreted in an active mode to include positive reaction to the psychological and sociological demands for individual development and social reconstruction. Third, real-life learning amplifies the concept of developing a problem-centered curriculum and demands that it be based on the social realities of the learner. Finally, reflection on the trends in adult learning suggests that refocusing professional organizations, training programs, conferences and other activities on the *learner* could revitalize and unify the fractured nature of the field of adult education.

Building Tomorrow's Research Agenda for Lifelong Learning (1989) makes available to all adult educators thoughts generated at a workshop sponsored by the Kellogg Center for Adult Learning Research for the purpose of developing a research agenda on adult learning. In it Sharan Merriam addressed the future with "Adult Learning: A Review of the Literature with Suggestions for the Direction of Future Research." Roger Hiemstra voiced his concerns regarding technology in "The Electronic Age: Some Adult Education

Research Needs." Stephen Brookfield examined a favorite subject, "Media Literacy, Adult Learning, and Critical Thinking: A Crucial Connection for Research and Practice." The monograph also contains a response of these three leaders to questions raised by workshop participants during discussions of the three presentations.

Two monographs were produced in earlier years of this project and described in previous reports. *Cognition and the Adult Learner* (1988) contains transcripts of presentations delivered at the first Summer Institute on Adult Learning which was held at Montana State University in 1987. It contains an insightful overview of psychology and adult cognition by Wilbert McKeachie, exciting insights into biology and adult cognition by Frank Farley, and specific principles on technology and adult cognition by Barbara Grabowski. Regional educational leaders also contributed articles on problem solving, cognitive skills, and applications of theory to practice.

Spacial Reasoning and Adults (1988) contains two papers by Sharon LaPierre on the measurement of spacial intelligence in adults. Her rejection of the notion of intelligence as one basic ability led her to an examination of the use of a "doodle" activity to analyze the level of manipulation of abstract mental imagery possessed by an individual. Sharon's postdoctoral work at the Kellogg Center grew out of her dissertation studies at the University of Denver where she currently acts as consultant to various projects.

Immediate responses to the dissemination of these monographs have been very positive. At least three of the articles (by Merriam, McLaren, and Sternberg) have been or are in the process of being reprinted in journals or books. Frequent references were made to Horton's actions and ideas at the 1990 Adult Education Conference in Salt Lake. Graduate courses and seminars at various institutions are using the monographs as texts or references. Requests are constantly being made to the Center for Adult Learning Research for reprints of the articles.

The impact of these monographs on the field of adult education will be judged by changes in research and conceptual development within the field during the next few years. Certainly, they contain exciting ideas; ideas that potentially can have a profound affect on the study of adult learning. However, their value should not be judged solely by the use made of the printed material. The insight and the excitement of those who did the research or listened to and discussed the presentation described within these monographs will live on and influence their actions for years to come.

Publications of Center Staff: 1988-90

Dissemination efforts other than the editing and publishing of Kellogg Center monographs include others publications of Center staff, presentations at local, state, national, and international meetings, and the incorporation of insights and processes developed at the Center into university courses and advisement of fellows and students. Listings appropriate to these activities are included below.

Gary J. Conti

Conti, G.J. (1990). Teaching style and the reflective practitioner. In M. Galbraith (Ed.), *Adult learning methods: A guide for effective instruction* (pp. 79-96). Malabar, FL: Krieger Publishing Company.

Conti, G.J. (1989). Assessing teaching style in continuing education. In E. Hayes (Ed.), *Effective teaching styles* (pp. 3-16). San Francisco: Jossey-Bass.

Conti, G.J. (1989). Teaching styles and the adult basic educator. In M. Taylor & J. Draper, *Adult basic education: A field of practice*. Ottawa, Quebec: University of Ottawa Press.

Conti, G.J. (1989). Learning styles and what you can do about differences. *Indiana Literacy Coalition Newsletter.*

Conti, G.J. (1989). Understanding the adult learner. *Indiana Literacy Coalition Newsletter*

Conti, G.J. (1988). [Review of *Understanding and facilitating adult learning*]. *Adult Education Quarterly.*

Robert A. Fellenz

Fellenz, R.A. (1989). Assessing adult learning

strategies. *Proceedings*, Teaching at a Distance Conference. Madison, WI: University of Wisconsin

Seaman, D.F., & Fellenz, R.A. (1989). *Effective strategies for teaching adults*. Columbus, OH: Charles Merrill

Fellenz, R.A. (1989). Applying naturalistic evaluation in basic education. In M. Taylor and J. Draper, *Adult literacy perspectives*. Toronto: Culture Concepts

Fellenz, R.A. (1988). *Lifelong Learning and Self- Sufficiency*. Position paper #32, Montana Aging Policy Perspective Study: 1990. Helena, MT: Governor's Office on Aging

Fellenz, R.A. (1988). Knox, Alan B., Helping Adults Learn. An invited book review. *Adult Education Quarterly, 39*, 1, Fall, 1988.

Lynn C. Paul

Paul, L.C. (1990). Book review of *Adult Learners' Survival* Skills by W.H. Bittel. *Journal of Adult Education, 19*, 45-46.

Joint Publications of Center Staff Members

Fellenz, R.A., Conti, G.J. (1990). *Learning and reality: Reflections on trends in adult learning*. ERIC monograph. Columbus, OH: ERIC Clearinghouse on Adult, Career, and Vocational Education.

Counter, J.E., Paul, L.C., & Conti, G.J. (1990). Conrad, Montana: A community of memories. In Fellenz, R.A. & Conti, G.J. (Eds.), *Cultural influences on adult learning*. Bozeman, MT: Center for Adult Learning Research, Montana State University.

Conti, G.J., & Fellenz, R.A. (1989). Using individual differences to design a typology of learning styles. *Proceedings of the 30th Adult Education Research Conference*. Madison, WI: University of Wisconsin.

Conti, G.J., & Fellenz, R. A. (1988). Teacher actions that influence Native American learners. In M. Zukas (Ed.), *Proceedings of the TransAtlantic Dialogue Research Conference*. Leeds, England: University of Leeds

Conti, G.J., & Fellenz, R. A. (1988). Teaching and learning styles and the Native American learner. *Proceedings of the 29th Annual Adult Education Research Conference*, pp. 67-72.

Conti, G.J., & Fellenz, R. A. (1988). Using a data management system to control research data entry and manipulation. *Proceedings of the 29th Annual Adult Education Research Conference*, pp. 73-78.

Presentations of Center Staff: 1988-90

Gary J. Conti

"Teaching Native American Learners," Stone Child College Staff Development Workshop, Rocky Boy Agency, Montana, September 1990.

"Understanding and Teaching Adult Learners," Ohio Cooperative Extension Service Conference, Columbus, Ohio, May 1990.

"Identifying Effective Learning Strategies for Literacy Students," Commission on Adult Basic Education Conference, Buffalo, April 1990.

"Profiles of Native American Learners," Commission on Adult Basic Education Conference, Atlanta, Georgia, April 1989.

"Little Big Horn College and the Tribal College Teaching/Learning Style Study Findings," Little Big Horn College, Crow Agency, Montana, January 1988.

"Dull Knife College and the Tribal College Teaching/Learning Style Study Findings," Dull Knife College, Lame Deer, Montana, January 1988.

"Evaluation Skills: A Professional Development Area," National Adult Education Conference, Tulsa, Oklahoma, November 1988.

"Update on Publications," College Reading Association Conference, Atlanta, Georgia, October 1988.

"Multi Agency Cooperation = Successful Staff Development Programs for Montana Math Education," with Dan Dolan, National Council of Supervisors of Mathematics, Chicago, Illinois, April 1988.

"Learning Style and What You Can Do About Differences," Indiana Adult Literacy Coalition Conference on Literacy Instruction, Indianapolis, Indiana, November 1988.

"Understanding the Adult Learner," Indiana Adult Literacy Coalition Conference on Literacy Instruction, Indianapolis, Indiana, November 1988.

"Critical Reflections on Teaching and Learning Styles in Adult Education," Milwaukee Council for Adult Learning, Milwaukee, Wisconsin, May 1988.

Janice E. Counter

"The Effect of Learning in a Discussion Group on Personal Development," Adult Education Research Conference, Madison, WI, April, 1989.

"The Montana Study: Community Problem Solving Groups," Northern Rocky Mountain Research Association, Jackson Hole, WY, October, 1988.

Robert A. Fellenz

"Learning Strategies & Implications for Teachers," ABE Teachers Workshop, Montana State University, Bozeman, MT, June, 1990.

"Learning in the Last Decade of the Twentieth Century," Keynote Address, New Mexico Adult Education Conference, Ruidosa, NM, May, 1990.

Grant Writing Workshop, Extension Training Week, Montana State University, Bozeman, MT, March, 1990. With D. Bishop.

"Approaches to Faculty Development," Panel, Commission of Professors of Adult Education Annual Meeting, Atlantic City, NJ, November, 1990.

"Assessing Adult Learning Strategies," Fifth Annual Conference of Teaching at a Distance, Madison, WI, August 1989.

" How to Teach Adults," Rural Technical Assistance Program, National Conference. Big Sky, MT, July, 1989.

"Lifelong Learning and Self-Sufficiency," Governor's Conference on Aging, Billings, Mt., Sept., 1988.

"Creating a Future Agenda for Adult Learning Research," Symposium member. Adult Education Research Conference, Calgary, Canada, May, 1988.

Lynn C. Paul

"Importance of Memory in Adult Learning," National Adult Education Conference, Sale Lake City, November, 1990.

Nate St. Pierre

"Empowerment through Self Analysis," National Indian Adult Education Association Conference, Las Vegas, Nevada, August, 1990.

"Communication through the Oral Tradition: A Native American Perspective," Northwest Communication Association Annual Conference, Coeur D'Arlene, Idaho, April, 1990.

"Interpretation of a Bilingual Novel," Montana Indian Education 8th Annual Conference, Helena, MT, March, 1990.

"Museum of the Rockies: Making a Connection with Indian People," Montana Indian Education 8th Annual Conference, Helena, MT, March, 1990.

"The Tribal College Developmental Life Cycle," Montana Indian Education 7th Annual Conference, Great Falls, MT, March, 1989.

Joint Presentations of Center Staff Members

Fellenz, R. & Conti, G., "Judging Your Learning Strategy," National Adult Education Conference, Salt Lake, UT, November, 1990.

Conti, G., & Fellenz, R., "Learning Style Profiles: Evidence for Helping Adult Learners," National Adult Education Conference, Salt Lake, UT, October, 1990.

Fellenz, R. & Conti, G., "Teaching Tips for Part-time Instructors," Blackfeet Community College, Browning, Montana, September, 1990.

Conti, G., & Fellenz, R., "Developing Curricula for Teaching Native American Learners," AIHEC/Ford Institute for Tomorrow's Generation of Leaders, Montana State University, Bozeman, Montana, August, 1990.

Counter, J.E., & Paul, L.C., "The Impact of Participatory Research on Building a Progressive Community," Adult Education Research Conference, Athens, GA, May 1990.

Fellenz, R., & Conti, G., "Teaching and Learning in an ABE Setting," Two-day Workshop for ABE teachers of New Mexico, Ruidosa, NM, May, 1990.

Conti, G., & Fellenz, R.,"Research Update: Adult Learning Strategies," Wyoming Adult Continuing and Community Education Conference, Sheridan, WY, April, 1990.

Fellenz, R., & Conti, G., "Uncovering Adult Learning Strategies," Mountain Plains Adult Education Conference, Boulder, CO, April, 1990.

St. Pierre, N., & Rowland, F., "Research Priorities of Montana's Tribal Colleges," American Indian Higher Education Consortium, Bismark, ND, April, 1990.

Conti, G., & Fellenz, R., "Learning Profiles of Indian Students," Montana Indian Education Conference, Helena, MT, March, 1990.

White, B., Rowland, F., Young Bear, D., & St. Pierre, N., "Empowerment through Discovery," Montana Indian Education Conference, Helena, MT, March, 1990.

Fellenz, R., Conti, G., & Paul, L., "Learning Strategies," Montana Association for Adult and Community Education Conference, Bozeman, MT, October, 1989.

Conti, G., & Fellenz, R., "Using Individual Differences to Design a Typology of Learning Styles," Adult Education Research Conference, Madison, Wisconsin, May, 1989.

Paul, L.C., & Counter, J.E., "The Study Group as an Alternative Adult Education Method," Mountain Plains Adult Education Conference, Phoenix, May, 1989.

Fellenz, R., & Conti, G., "Teaching and Learning in the Native American Community," National Adult Education Conference, Tulsa, OK, November, 1988.

Conti, G., & Fellenz, R., "College Teaching in the Tribal Colleges," Blackfeet Community College, Browning, Montana, September, 1988.

Conti, G., & Fellenz, R., "Teacher Actions That Influence Native American Learners," Trans-Atlantic Dialogue Research Conference, Leeds, England, July, 1988.

Fellenz, R., & Conti, G., "Using a Data Management System to Control Research Data Entry and Manipulation," Adult Education Research Conference, Calgary, Canada, May, 1988.

Conti, G., & Fellenz, R., "Teaching and Learning Styles and the Native American Learner," Adult Education Research Conference, Calgary, Canada, May, 1988.

Lundgren, P., White, B., & Fellenz, R., "A Classification of Adult Learning Research," Poster Session, Adult Education Research Conference, Calgary, Canada, May, 1988.

Conti, G., & Fellenz, R., "Teaching and Learning of Native American Adults," Commission on Adult Basic Education Conference, Seattle, June, 1988.

Editorship of Major Journal

Conti, G. & Fellenz, R., *Adult Literacy and Basic Education*, An international journal for basic adult education published by the Commission on Adult Basic Education, AAACE. 1983-present.

Conclusions

As a result of the extremely productive final year of the Kellogg Center, the following conclusions can be drawn about research and its impact on an institution.

It is possible to create a research center that can influence a field.

The Kellogg Center started out as a dream; however, within its short lifetime it had an impact upon the field of adult education. Through the series of three summer institutes, numerous adult education researchers came to the Kellogg Center and contributed to its research mission. Networks were formed within North America that stimulated joint research projects and the sharing of ideas, designs, and data. Kellogg Center sponsored projects commanded a large portion of the agenda at recent Adult Education Research Conferences. Kellogg Center faculty, doctoral fellows, and postdoctoral fellows also presented at numerous other conferences and published articles related to their projects. In addition, the Kellogg Center published and distributed a monograph series dedicated to projects conducted at the center. Thus, through a combination of human contacts and dissemination strategies, the Kellogg Center impacted the nature of research in the field of adult education.

It is possible to create a research center that can influence the nature of research within a college at a university.

The staff at the Kellogg Center assumed a broad view of research. Early in the life of the center, it was decided that both naturalistic and rationalistic research would be supported. An emphasis was placed upon matching the research paradigm and design with the nature of the research problem. This approach was incorporated into courses and seminars taught by the Kellogg Center's faculty. This quickly became known to graduate students and faculty. With its acceptance by many and with the technical assistance available through the cen-

ter, many students and faculty became more directly involved in their own research. Testimony from both groups indicate that a more positive attitude toward research now exists within the college.

New approaches of conducting research threaten change within an institution.

Research involves the creation of knowledge for a field. Those who control the research apparatus for a field control that field's knowledge base. New ways of doing research and therefore of creating knowledge threaten change. While some within the College of Education, Health, and Human Development eagerly embraced the change and flexibility stimulated by the Kellogg Center, others resisted it. As long as the Kellogg Center had external funding and support from the Kellogg Foundation, this opposition was rather muted. However, as soon as this support formally ended, opponents to the change instigated by the Kellogg Center intensified their attack upon the Kellogg Center. The Kellogg Center was immediately moved from the building which was refurbished with Kellogg funds, most of the center's furniture and equipment were taken and relocated in administrative offices, and support services ended. Although the Kellogg Center has survived under its official name of the Center for Adult Learning Research, most of the advantages accrued from its Kellogg affiliation have been decimated, and the new center is a mere skeleton of the original Kellogg Center. Although a center remains which continues to support faculty and students in diverse approaches to research, those creating a research center should recognize this threat of change from the center's inception so that steps can immediately and continuously be taken to work with all faculty to mitigate them.

Research requires financial support.

Conducting research is a costly activity. Creating knowledge through field-based research cannot be conducted without financial support. The availability of Kellogg support allowed the Kellogg Center to reach out across the state, region, and nation to influence local, regional, national, and international research. Most of those conducting this research spend time on-site at the Kellogg Center. This strengthen research designs and facilitated a communication network for researchers in various formal and informal educational settings. The number of researchers supported was so great that during the final summer of the Kellogg Project, there was not a single space available for additional researchers; typewriter tables were converted to work stations and offices were shared in order to accommodate all who were at the center. However, as soon as Kellogg support ended, the center was like a western ghost town; no one was there except for the two research faculty. This emptiness was used as a justification for immediately moving the center to a smaller, more limited location.

It is unrealistic to expect a financially marginal institution to assume the costs for research activities.

Montana is a small, rural state which has limited resources and which suffered economic difficulties throughout the 1980's. Consequently, the higher education system has had severe financial problems. Montana State University (MSU) has experienced cuts in personnel, equipment, and building maintenance. Under such conditions, it is unrealistic to expect the institution to commit precious funds needed for survival to research activities. Such support must come from outside sources.

Investment in research is a long-term process.

Since it is unlikely that financially marginal institutions will be able to assume the costs of supporting research for its faculty, foundations making grants for research projects should consider very long time lines for the project. The four years allocated for the Kellogg Center was a sufficient time for the center to be created, staffed, and

developed into a fully functioning research center. However, it was not long enough for it to developed a solid research agenda *and* to convert that agenda into other sources of funding. In order for a research center to mature into a financially independent center, it should originally be funded for at least seven years.

Research centers can form informal alliances with other programs on campus to provide support services and to strengthen both programs' mission.

Many programs on a university campus have a need for research support services. A research center can work in concert with these programs to synergistically affect staff and students in both programs. At MSU, the Center for Native American Studies and the Kellogg Center worked cooperatively in designing and conducting research projects. This cooperation provided needed research activities for graduate students funded through the Center for Native American Studies, provided the Kellogg Center with access to Native American communities in Montana, and directed many tribal college and Native American students toward the Adult Education graduate program. Such cooperation allowed the Center for Native American Studies to accomplish its goals, sparked several research projects for the Kellogg Center, identified doctoral fellows for the Kellogg Center, and helped the Adult and Higher Education program expand into the largest program in the College of Education, Health, and Human Development.

A research center can dramatically affect people and their view toward research.

The Kellogg Center has opened new vistas for research for faculty and students at MSU and for fellow researchers in the field of adult education. Their testimony indicates that they not only learned about new ways of doing research from those at the Kellogg Center, but they also received the technical support which was needed in order to carry out research in this manner. Because of this new knowledge and their successful experiences, they now have a newfound enthusiasm for research and a deep commitment to continuing to conduct research in education. This spirit has carried over into the teaching of the basic research design course in the Department of Education and is being communicated to students throughout the college.

Appendix

Health Care

Environment

BEST COPY AVAILABLE

Kellogg Center for Adult Learning Research

Third Year Report

Montana State University

Bozeman, Montana

April, 1989

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Third Year Report: Kellogg Center for Adult Learning Research

Introduction

With support from the W. K. Kellogg Foundation, the Center for Adult Learning Research was established at Montana State University (MSU) in December of 1985. Funded as a four year project, the Kellogg Center has the two major purposes of contributing to the research base in adult learning and of training a cadre of professionals who as adult education researchers can continuously contribute to the body of knowledge in adult learning. Initial development of the project resulted from the cooperative efforts of Colorado State University, Montana State University, Utah State University, and the University of Wyoming.

Much of the first year activities for the project focused on organization and staffing. This was accomplished with the assistance of an MSU advisory committee and a regional planning committee with membership from Colorado State University, Utah State University, and the University of Wyoming. These groups assisted with much of the early planning and development activities and with some of the initial goal setting.

The major areas of activity during the first year were in terms of developing the facility and staffing. A decision was made to locate the Kellogg Center in a house near the edge of campus, and the extensive remodeling of and addition to this building was started. This renovated facility was completed in May of 1987, and the project started operating from this site at that time. During this time period, a national search was conducted and the two research faculty positions were filled by Drs. Gary Conti and Robert Fellenz. Additional faculty time was added through the assistance of Dr. Ralph Brockett who was already on the faculty at MSU. Also during this time, five doctoral fellows, a full-time secretary, and a half-time coordinator were added to the staff.

Research activities during this period centered on the teaching-learning transaction. Several projects were conceptualized and designed to fit within this framework. These projects included (a) teaching-learning styles in tribally controlled colleges in Montana, (b) intentional learning and change, and (c) adult learning in nonformal, single episode mandatory education.

During the second year of the project, activities moved beyond the initial organization and staffing to conducting numerous research activities. These included (a) a meeting prior to the Adult Education Research Conference (AERC) to involve numerous adult education researchers in planning a research agenda for the future; (b) the initiation of a "Summer Institute" focusing on adult cognition to stimulate other adult education researchers to expand or continue their research efforts in adult learning; (c) continued training of the doctoral fellows in research with one of the first group of fellows successfully completing her dissertation with data generated through the Kellogg Center; (d) a pilot study on distance education in Utah; (e) publications in a variety of journals such as *Adult Education Quarterly*, *Journal of Extension*, and *Lifelong Learning*; and presentations at state, regional, and national conferences including AAACE, AERC, American Indian Higher Education Conference, Northern Rocky Mountain Research Association, and the Northwest Adult Education Conference. In addition, the first three postdoctorates were selected. Their research, which was conducted through the Kellogg Center, focused on spatial intelligence, social networks in two populations of low-literate adults, and a staff development program in a Latin American university.

During the second year of the project, linkages were expanded with other parts of the university at MSU and with other programs throughout the region. The Project Coordinator continued to serve as a member of the Project Management Board for the ICLIS project, and several discussions were held on how the Kellogg Center could work more closely with this project. Kellogg Center faculty and staff also continued their involvement within the College of Education, Health, and Human Development and with other ap-

propriate departments and offices at MSU.

General goals were established for the third year of the Kellogg Center which built upon the previous first and second year activities. These goals were as follows:

1. To plan, organize, and carry out a second summer institute;
2. To continue to conduct research focusing on learning styles;
3. To begin a meta-analysis of adult learning research;
4. To continue to publish monographs and reports appropriate to the research and other activities of the Kellogg Center;
5. To disseminate information by presenting papers at appropriate state, regional, and national conferences;
6. To continue to train future researchers in adult education through the doctoral and postdoctoral fellowship programs;
7. To continue to develop linkages with the universities within the four state area, with the ICLIS project, with the other Kellogg funded adult education projects throughout the country, and with appropriate agencies, institutions, and organizations in Montana;
8. To continue to develop linkages with other programs and departments on the Montana State University campus; and
9. To continue to seek additional funding for the Kellogg Center from within the university and from external funding sources.

Summer Institute on Adult Intelligence

The Center for Adult Learning Research sponsored its second annual Summer Institute from August 3 to 6, 1988. The major purpose of these summer institutes is to stimulate research on adult learning by promoting interaction among leading adult education theorists and researchers and by exposing them to the insights of experts in other fields. Major outcomes of this interaction are then disseminated to the general field of adult education through monographs containing Institute presentations and discussions. A secondary purpose of the summer institutes is to bring to the people of the Rocky Mountain area national experts in the various areas of learning.

At the 1988 Institute, 34 participants (see Appendix C) from 19 institutions throughout the nation and from the Kellogg Kellogg Center at Montana State University discussed how intelligence and the adult learner is, can, and should be a research effort for the field of adult education. Presentations were made on the MSU campus for the participants as well as the entire academic community. Two nationally prominent scholars keynoted the Institute. Dr. Robert Sternberg, IBM Professor of Psychology and Education at Yale University, expanded the notion of what intelligence is through a two hour presentation on his triarchic theory of intelligence in adulthood. Dr. Claire Weinstein, Professor of Educational Psychology at the University of Texas, described her work on learning strategies that promote improved academic performance by college aged adults. In an effort to relate their presentations specifically to adult education, a panel shared with the audience their reflections and reactions to the keynote addresses. The panel consisted of Huey Long of Oklahoma State University, Chere Campbell Coggins of the University of Wisconsin-Madison, Burt Sisco of the University of Wyoming, and Sharan Merriam of the University of Georgia. These presentations and the comments of the reaction panel are being published as a monograph in the Kellogg Kellogg Center series.

The 34 invited participants then retreated to Huntley Lodge, Big Sky, Montana, for two and a half days of group interaction and discussion about research on adult learning and on methods of networking through the Kellogg Center. Sternberg and Weinstein discussed ways of putting into practice ideas advanced in their keynote speeches and shared suggestions for research designs on adult learning. Kellogg Kellogg Center doctoral and postdoctoral fellows described their completed and ongoing research projects on spatial intelligence, literacy, staff development, informal learning, and an overview of adult learning research. Selected participants from the 1987 Summer Institute shared their research efforts of the past year. In addition to such organized sessions, social activities and informal gather-

ings were used to stimulate group discussion and networking that would give impetus to future collaboration.

The best commentary on the usefulness and success of the 1988 Summer Institute comes from the words of the participants themselves. Asked to comment on the appropriateness of the theme, participants' responses were generally positive:

- Speakers provocative, practical, prepared;
- Theme appropriate and well developed;
- Quality very good, relevance sometimes questionable;
- Theme connects with Kellogg Kellogg Center thrust....

However, some concern for more theory, more application, and more interaction with the speakers was also expressed.

Comments were even more positive about the retreat at Huntley Lodge. This was described as the:

- Highlight of the Institute;
- Appreciate informal networking during non-scheduled time; and
- Very beneficial...reflection and self-evaluation in presence of colleagues.

One participant exclaimed, "I got two ideas for research projects during informal sessions, and that is what I hoped would happen."

When asked to comment on how the Institute reached its goal of stimulating adult educators to do research on learning, participants expressed hope about long term effects and testified as to immediate results.

- I think the goal will certainly be accomplished over time.
- In my case this was achieved with great success. I now plan to incorporate into my research agenda, research focusing on adult learning.
- It inspired me to submit a research grant to foundation and to raise questions of how we can collaborate.
- I've made four commitments and connections related to my research that would *not* have happened if not for this institute.

Most encouraging was the proposal of one participant who urged "let's get beyond the stimulation and orchestrate a major sharing by 20 or so researchers." Collaborative efforts in research on adult learning are desired; the Kellogg Center's Summer Institute is one proven vehicle for accomplishing this.

Research on Adult Learning

The need for research on adult learning is far more extensive than could be met by the resources and expertise of any one center. Thus, the Kellogg Center's role has been defined as one of stimulating research by others as well as conducting original studies by the staff. The result has been a number of exciting collaborative and individual projects--studies conducted on the campus of Montana State University, within the Rocky Mountain region, in other states, and even in other countries. Leadership responsibility for such research has been exercised by doctoral and postdoctoral fellows or by professors at various universities as well as by the faculty of the Kellogg Center. Some studies have been planned, conducted, and reported individually but most have contained a collaborative aspect. Though the topics have been diverse, all have sought to increase the understanding of how adults learn and how educators can promote the efficacy of the teaching-learning interaction.

Research questions pursued during the 1988 fiscal year are described below. They are grouped according to the individuals having major responsibility for the research. Listed first are projects led by Kellogg Center faculty. These are followed by short descriptions of the research efforts initiated by postdoctoral and doctoral fellows associated with the Kellogg Center. Finally, collaborative efforts with others are described.

Research by Kellogg Center Faculty

Are There Learning Strategies Adults Can Use to Improve Their Learning?

A major research project was initiated by the Kellogg Center staff this year to examine learning strategies used by adults and to determine whether the teaching of such strategies can increase the effectiveness of learning efforts. The project is under the direction of Bob Fellenz but is indeed a col-

laborative effort involving Gary Conti and all the doctoral fellows associated with the Kellogg Center. It is anticipated that this multiphased project will enlist the cooperation of adult educators throughout the country in the next few years.

The ultimate purpose of this study is to improve learning strategies used by older adults. Learning strategies, according to Claire Weinstein, are "behaviors and thoughts that a learner engages in during learning and that are intended to influence the learner's encoding process." A three-step process is being conducted in order to reach this goal.

First, the essential behaviors and thoughts that affect how adult learners engage the learning process are being identified. These variables will then be incorporated into an instrument that will assess the learning strategies of adults as they engage in leaning activities relevant to their daily lives. In addition to adult educators, the work of cognitive psychologists such as McKeachie of the University of Michigan and Weinstein of the University of Texas have been helpful in this process.

The second step of the process will be to identify the learning strategies actually employed by mature learners. The instrument developed during the first part of the study will be used to assess the learning strategies of various groups of adults. The final step in the process will be to evaluate the learning strategies used by adult learners and to identify methods that would be more effective in learning situations. These improved strategies will be taught to selected groups of adult learners, and assessments will be made to determine how such teaching of learning strategies to adults can improve the efficiency of their learning efforts.

Can Specific Teaching or Learning Styles Be Associate With Effective Learning by Adult Native American Students?

Another major effort of the Center for Adult Learning Research is the continuation of a project initiated by Gary Conti in 1987. With the aid of Bob Fellenz and a network of research interns at the various tribal colleges, a vast amount of data was gathered during the second year of the project. Ongoing analysis of the data and dissemination to tribal college personnel and interested adult educators has continued through 1988.

The Tribally Controlled Community College Act created an educational system for adults on reservations. These schools are regular community colleges with the additional mission of maintaining the culture of the tribe. Montana has more tribal colleges than any other state with a college on each of its seven reservations. All seven colleges cooperated with the Kellogg Center in a two-part study. The first part used a rationalistic design to measure the learning style of Native American students enrolled in the colleges, the teaching style of instructors at the colleges, and the influences of these styles on student achievement. The second part of the study used a naturalistic design and was concerned with the behaviors of teachers that contributed to student learning.

In Phase 1 of the project, learning style data based on the Canfield Learning Style Inventory were collected on 693 students at the seven tribal colleges on the reservations in Montana. From this group, students with unique learning style profiles were identified. During Phase 2 of the project, 72 of these students or approximately 10 students at each of the seven campuses were interviewed. A balance was sought between genders; different age groups were represented; extreme scores in all categories of the Canfield Learning Style Inventory were included. Most of the students interviewed were Native Americans. Each interview lasted approximately 45 minutes. The interview format probed for information on three topics. Students were asked about (a) their best teachers, (b) their worst teachers, and (c) things that teachers did to either hinder or reinforce their learning style. Explanations were sought to describe each type of teacher.

Although it was not possible to identify a distinctive Native American learning style as based on the variables measured by the Canfield Learning Style Inventory, the grades of

students tended to rise as the teaching style shifted from a teacher-centered to a learner-centered approach. In addition, much rich data on teacher actions that promoted or interfered with student learning was garnered through the interviews. Findings both as to teaching and learning style and as to methodologies for doing research on adult learning have made this a most productive study. Conclusions have been shared with tribal college administrators and teachers, with regional and national adult education groups, and with researchers in the United States, Canada, and England. This research has led to additional studies of Native American teaching and learning styles and will be continued as a major research interest at the Kellogg Center. Two researchers who were not funded through the Kellogg Center but who assisted in the data collection for this project have used the data base for their doctoral research, and both are scheduled to defend their dissertations before June.

What Is the State of the Art in Research on Adult Learning?

One of the challenges extended to the Kellogg Center at Montana State University early in its development was that of analyzing the status of research on adult learning. That task was begun in 1987 but proved more difficult and time consuming than anticipated. Nevertheless, efforts to make some assessment of the strengths and weaknesses in the field continued throughout 1988.

Research on adult learners can be found in fields as diverse as architecture and nursing. Much of it has a very pragmatic orientation, is applicable only to specific situations, and consequently is disseminated to limited audiences. However, these problems proved minor in comparison to such issues as categorizing the field of learning, evaluating research initiatives in various areas, and distilling varied findings into useful reports. Reports at the Adult Education Research Conference and the 1988 Summer Institute provided further encouragement for the project.

The Kellogg Center anticipates publishing a number of short reports on various areas of research in adult learning during the next year. Adult educators at other institutions will also be encouraged to share their reviews of research on adult learning through the Kellogg Center's network.

Can Individual Differences Of Learning Style Be Maintained Through The Use Of Cluster Analysis?

Researchers at the Kellogg Center for Adult Learning Research at Montana State University have attempted to identify the constructs underlying learning styles in a number of adult groups. To accomplish this, an established learning style instrument, the Canfield Learning Style Inventory (CLSI), has been administered to a adults in a variety of programs such as tribally controlled community colleges, military programs, continuing education programs, and undergraduate courses. A disturbing problem throughout this research has been the tendency to *loose* the individuality of the learner in the means of the group. The tendency to use inferential statistics based on computations made from the means of the groups of individuals seems inappropriate when the very object of the study is to examine how individuals differ from one another. The study of individual differences as expressed through personal learning styles calls for a mode of analysis that preserves the individual as the entity of the analysis.

The purpose of this study was to explore quantitative and qualitative techniques which would allow the preservation of individual differences in an effort to develop a typology of learning styles. Two research questions were addressed: Is cluster analysis an effective statistical method for deriving a typology of learning styles which maintains individual differences, and can limited interview data be categorized according to a cluster analysis in order to identify similar comments about the teaching-learning transaction? To address these questions an ex post facto analysis was conducted of CLSI scores collected on 565 Native Americans attending the tribally con-

trolled community colleges of Montana. From this group, 57 students who had distinctive learning style profiles of very high scores in at least two areas measured by the CLSI had been interviewed about their learning styles and about teacher actions that affected their learning.

This analysis produced information and insights related both to adult learning and to methods of analysis. Cluster analysis proved effective in preserving the individual as the unit of analysis in a manner not done by most other statistical procedures. As such, it should have numerous applications in education, especially in studies examining individual differences characterized by numerous variables. However, this particular use of the cluster analysis process did raise a number of questions and cautions. The clusters produced by this analysis also proved to be an effective way of categorizing previously collected interview data. When the interview data were analyzed by these clusters, distinct similarities emerged in the way students discussed the teaching-learning transaction. However, the cluster analysis did not predict the exact concepts that the students used in describing their learning.

This study sought to use individual differences to identify and describe distinct learning style groups. While this was achieved, the analysis of the interviews uncovered a danger in this approach. In relying only on the unique characteristics, the broad and pervasive characteristics which applied to most learners were lost. Thus, while cluster analysis is a powerful means for preserving individual differences and an effective way for grouping interview data, it should be used in combination with other techniques which identify and maintain general group tendencies when attempting to construct a typology of a concept such as learning styles.

Research by Postdoctoral Fellows

What Economic Contribution Do Adult Learning Activities Make in a Community?

For more than 7 years, John Shirk has been talking to adults in selected communities about their learning projects. Interviews especially in Houston, Texas, and Port Townsend, Washington, have unearthed what John calls "invisible learning networks." These networks link adult learners and the providers of learning opportunities in informal networks throughout communities and play a dominant role in the resources adults use in their learning efforts. The question he is now asking as part of a postdoctoral fellowship with the Kellogg Center is, "What kind of economic impact do the learning activities of these adult learners and learning providers have on a community?"

Livingston, Montana, was selected as the site for this series of interviews with learners. Over 60 adults randomly selected from the telephone book were questioned about their learning activities, the resources used, their satisfaction with the resources, and learning plans for the future. Included in the interview were questions regarding the amount of money spent or earned as a direct result of the learning activities. Shirk's preliminary estimate is that the average learner contributes approximately $1,000 a year to the community's economy through learning activities. Jeff Shada, a resident of Livingston and a graduate student at MSU, assisted Shirk by identifying and interviewing learning providers in the community. Many of them earn or augment their incomes through adult education activities. Specific findings of this study will be reported in a Kellogg Center monograph to be published in 1989.

How Do Low-Level Literates Function Within Their Communities?

During the first months of 1988, Linda Ziegahn explored various research sites in Montana that might meet criteria for a qualitative study of adult literacy. In March, she decided that the Pablo/Ronan community on the Flathead Reservation would provide an excellent location to interview low literates from different cultural groups for her postdoctoral research. These groups included both Native American and non-Native Americans. She interviewed community leaders to get a

feel for the educational environment of the reservation and started to identify study participants. Contacts at Indian institutions such as Salish Kootenai College and with the Tribal Council were able to suggest people to be interviewed. Cultural and educational institutions in the non-Native community were less aware of individuals in the community with literacy problems.

Twenty-seven individuals with low literacy skills and about 30 community resource people have been interviewed. The information from the 27 respondents reflects a population with very diverse ideas on how important literacy is in the lives of adults with poor reading and writing skills. At this point of the analysis, a continuum has emerged demonstrating the degree of "connection" between low literates' interest in furthering literacy education and the achievement of their aspirations. At the low end of this continuum are people who reject further education as a means toward goal attainment. These are people whose aspirations, either work-related or personal, do not involve literacy. They have developed sufficient support systems so that they can communicate adequately. At the high end of the continuum are people who make extremely tight connections between literacy education and aspirations. This is a very mixed group; it includes learning disabled people who have sufficient support to carry out traditional literacy-related tasks, people who can no longer rely on manual labor as a way to make a living and now seek more literacy-dependent "desk jobs", and women in unhappy domestic situations where literacy is seen as a way out.

Parallel to the interviews with low literate individuals has been a study focusing on perceptions of managers in local industries concerning the importance of literacy in daily work roles. Findings from this study are being integrated with information from low literate individuals on how literacy relates to their work. Preliminary findings from these two aspects of the study were presented at the National Adult Education Conference in November, 1988.

How Does Culture Affect People's Conceptions of Teaching and Learning?

In a project combining a postdoctoral fellowship at the Kellogg Center with a sabbatical leave from the University of British Columbia, Dan Pratt is seeking to provide insights into cultural perspectives on the teaching-learning interaction. Interviews with Chinese scholars in Canada and with adult learners in China are being compared to previous studies of learning conceptions of Native Canadians. An additional benefit of Pratt's study of the impact of culture on the teaching-learning transactions will be the comparisons that can be made to other research studies of the Kellogg Center.

Although this project began late in 1988, Pratt has already concluded that "Western views of adult education are based on egocentric conceptions of the person which exalt the individual, promote self-direction, place self-concept at the centre of learning, and regard emotions as a vital part of self-concept." Chinese conceptions of learning are more oriented to the societal needs and are interpreted in terms of the relationship between the self and society.

What Makes a Faculty Development Program Work?

Continuing professional education is being recognized by many professions as an essential means for coping with modern change and development. Paradoxically, educators and in particular university faculty often appear hesitant to engage in continuing education programs. S. Gregory Bowes of the University of New Mexico undertook a study of a successful faculty development program as part of his postdoctoral fellowship with the Kellogg Center. The particular staff development program examined was at the University of San Carlos, Guatemala. Bowes chose this program because of its apparent success and because of his previous contact with the program director.

Focus group sessions with 10 to 12 faculty members were used to identify factors that

the faculty recognized as contributing to the success of the staff development program. These insights were grouped into the following four major outcomes: (a) improved curriculum design, (b) enhanced teaching skills, (c) development of intercollege cooperation, and (d) corollary professional skills. Further information on these four areas was gathered through surveys of 30 participating faculty and four in-depth on-site interviews with faculty members.

Bowes concluded that not only were the goals of the program being met but that the faculty are now taking a more scientific attitude toward professional improvement as exemplified by the accentuated interest in using research as a method for improving the teaching learning process. The model used of involving faculty from diverse academic disciplines appeared to be successful both in broadening knowledge bases and in improving teaching skills. Bowes discussed this project at an international meeting of adult educators in Leeds, England, and will publish a full report in an upcoming Kellogg Center monograph.

Research of Doctoral Fellows

Can Personality Variables and Reasons for Enrolling Tell Us How To Educate Older College Students?

In order to better understand, serve, and retain the growing population of adult students in higher education, Barbara Storm has been examining reasons for enrolling in college, ways of perceiving information, ways of deciding, and locus of control. She anticipates that the findings of her study will increase the knowledge base of the changing college student population and provide college instructors and administrators with insight that will help them meet the unique needs of this increasing student group. By understanding the reasons nontraditional students enroll in college and the influence that perceiving, judging and locus of control have on these reasons, parallel curriculum and services can be implemented.

This study is seeking to answer the following questions: (a) Are there significant relationships between the reasons for enrolling as measured by the five subscales of the Educational Participation Scale, ways of perceiving and judging as measured by Meyers-Briggs Type Indicator, and locus of control as measured by Rotter's I-E Scale (Internal/External) for adult students, 25 years and older enrolling at Montana State University (MSU) for the first time? (b) Can a group of variables which measure reasons for enrolling, ways of perceiving and judging, and locus of control be used to predict academic performance as measured by grade point average for adult students?

Storm has collected data from 75 students who participated in Montana State's Return to Learn Orientation in September, 1988, and from an additional 57 students tested in small group sessions. She has entered the data into a dBase system and is using SPSS for analysis of data; both of these programs are on the Kellogg Center's computer network. Storm has been a doctoral fellow at the Kellogg Center throughout 1988. She anticipates completing this study by May, 1989.

Missionaries and Native Americans: Cultural Invasion or Adult Education?

The relationship between adult education and culture is being examined by Betty White. She is using a historical case study to examine the impact of adult education upon culture. The major analysis will be upon Father De Smet's work with the Salish tribe. Father De Smet was a Jesuit priest who taught the Salish about Catholicism and agriculture in the 1840s and 1850s. Many cultural changes took place during this time period. It will be insightful to understand in a historical context the various motives of both groups and the successful and unsuccessful outcomes of this educational enterprise.

What Impact Does the Physical Environment Have on Adult Learning?

Rodney Fulton has been focusing his activities on the physical environment and its effects on adult learning. His overview of the

subject using ERIC and Dialog electronic databases resulted in the publication of a bibliography, three articles in adult education journals, and several presentations. Rodney also spent three weeks conducting historical research at Syracuse University. Funded by the Visiting Scholars Program of the Kellogg Project at Syracuse, he was able to examine the documents of the Adult Education Association of the U.S.A. relating to that association's work with architecture and adult learning in the 1950s. The work of the Committee on Architecture will be reported to the field in various presentations as well as in an article in the Syracuse University *Courier*.

Fulton's interest in the physical environment has led to a study investigating whether adult learners make changes to the physical attributes of learning environments in different ways. The study hypothesizes two primary modes of response: (a) adaptive, or consciously and purposefully making changes; and (b) adoptive, or accepting the environment without making changes. A Survey on Physical Environments, the Oddi Continuing Inventory, and the Environmental Response Inventory were completed by 129 participants. Data is currently being analyzed.

What Kind of Long-Term Impact Does an Intense Learning Experience Have on an Adult?

Janice Counter has been working on a research project investigating whether an intense educational experience can have a long-term impact on an individual's learning and action. This project is being coordinated with her dissertation, an historical analysis of the Montana Study. In the 1940s, leaders in higher education in Montana devised a plan to take university resources out into the rural communities of the state. People were encouraged to join together in small groups to study their communities under a study guide devised by Montana Study leaders. In several locations, these groups did undertake significant community development projects.

Counter has located several Montana Study participants in the Conrad and Libby communities who are willing to talk about the impact of this experience on their lives. Interviews will investigate what the participants accomplished since the study, what strategies or problem solving skills they developed, and what other events or people in their lives mobilized their learning skills in new ways. It is anticipated that this quasi-longitudinal examination of an adult education experience will provide insight into methods of strengthening modern community development projects.

Community Health Care and Adult Education: Potential Partners?

Lynn Paul, who began her doctoral fellowship with the Kellogg Center near the end of 1988, is interested in improving the understanding and intervention of health-related behaviors, especially in the issues of compliance, with specific focus on self-efficacy. In promoting long-term behavior change, self-efficacy appears to address the issues of performance attainment, vicarious observations, verbal persuasion, and perceived physical state. Possible research projects include development of efficacy interventions for weight-control and dietary-fat reduction programs and exploration of methods to promote adherence to exercise programs.

Can a Battery of Cognitive Style Instruments Provide Insight into an Adult's Cognitive Profile?

In a unique arrangement with the University of Wyoming, Doctoral Fellow Robin Wilson-Glade is working with Burton Sisco to explore relationships between cognitive style and conation and between cognitive profile and conation. This study is supportive of research interests at the Kellogg Center and is a long time interest of Dr. Sisco. The opportunity to support a doctoral student at neighboring university has strengthen regional research linkages.

One hundred and fifty adult students are being given a battery of seven cognitive style instruments and the Goal Orientation Index. These instruments measure such cognitive

dimensions as field independence, focusing, reflectivity, leveling, tolerance, as well as conation. It is anticipated that such a multi-factor profile will provide additional insight into learning styles.

Cooperative Research Efforts

The faculty and staff of the Kellogg Center have actively pursued a policy of collaboration with others interested in research on adult learning. Examples mentioned earlier in this report include the involvement of research interns from the tribal colleges in the study of teaching and learning styles of Native Americans and the funding of a doctoral fellow at the University of Wyoming. Cooperative efforts on the Montana State campus have tended to be less formal but, nevertheless, productive. Examples here include consulting with administrators of projects directed toward older students and seminars on adult learning research for graduate students. In addition, Kellogg Center personnel have made special efforts to work with the faculty of Montana State University and of other institutions. Such efforts have included consultation, assistance in data processing, and financial support for research projects. Several examples of cooperative projects are listed below.

Rosemary Caffarella, Virginia Commonwealth University

Financial support from the Kellogg Center was used by Rosemary Caffarella to fund a graduate student to help generate an annotated bibliography on Cognitive Development in Adulthood. A first draft of this bibliography was distributed at the 1988 MSU Summer Institute. Plans were made to expand this bibliography and make it more widely available. In addition, a paper on Cognition in Adulthood, which is partially a direct result of this initial major review of the literature, will be submitted for the 1989 Adult Education Research Conference. In addition, Caffarella's funding supported the printing of a questionnaire on faculty development. This questionnaire has been used as the data collection mechanism for two major research efforts related to studying how faculty grow and develop in their careers: (a) a study of mid-career faculty and (b) a study of professors of adult education. The study on mid-career faculty will be reported out at the 1989 meeting of the American Educational Research Association and at a faculty development conference hosted by the University of Georgia in April of 1989. Data collection for the professors of adult education study has just been completed and applications will be made to report these findings at research meetings to be held in 1990.

Chere Campbell Coggins, University of Wisconsin

The research that Chere Coggins has proposed is dependent upon progress made by the Kellogg Center research staff. Coggins wishes to cooperate with the Kellogg Center in assessing learning strategies or learning styles of adult distance learners. The development of such an assessment device is in progress at the Kellogg Center; Coggins' application to the distance education setting will add a very appropriate dimension to the research.

Stanley Easton, Montana State University

"Barriers to Education for Rural Adults in 13 Western States" was the title Stan Easton gave to his cooperative research project with the Kellogg Center. The study was a large Delphi survey of policy makers with the potential to influence provision of education opportunities for adults. The 13 Northwestern states comprise approximately 25% of the territory of the United States but less than 10% of the population. The purpose of the study was to determine what public policies were regarded by these knowledgeable persons as important and feasible for providing adequate educational opportunities for the rural adults of this region. During 1988, Easton complete his analysis of Delphi responses and reported findings at the Adult Education Research Conference in Calgary.

David Gueulette, Northern Illinois University

Dave Gueulette used a Kellogg Center grant for a continuation of inquiry into the applications of the so-called psychotechnologies to adult learning. After extensive review of research on the applications of these systems in adult learning settings, he developed a detailed evaluation of this field and connected this investigation with a proposal for consideration of studies of psychotechnologies as legitimate instructional technologies. This proposal took the form of an article that appears in the December issue of *Educational Communications and Technology Journal* in December, 1988 under the title of "Psychotechnology as Instructional Technology: Systems for a Deliberate Change in Consciousness."

Lloyd Korhonen, University of Oklahoma

A grant from the Kellogg Center helped Lloyd Korhonen in the completion of two pieces of research on participation and persistence of adult learners. The was reported in the Lifelong Learning Research Conference Proceedings 1988. This research examined success in the weekend college in a variety of models. The grant allowed Korhonen the chance to travel to complete the research.

The second piece of research will be reported at the Adult Education Research Conference in Madison, Wisconsin. The title of that research is: An Analysis of Selected Factors Differentiating Participation in Two Nontraditional Delivery Systems.

Alex McNeill, Montana State University

Support from the Kellogg Center is being used by Alex McNeill to design and evaluate a pilot project for training teachers to integrate aspects of social responsibility into their teaching. A summer seminar approach will be used to explore and develop specific instructional strategies to enable the teacher participants to address pressing social issues in their classrooms. If the pilot seminar to be held during the summer of 1989 proves successful, McNeill will approach other source for the funding of a series of these summer seminars.

The long-range project calls for a series of interdisciplinary seminars led by national experts. A "think tank" approach enabling 40 to 50 public school teachers and graduate students to interact with these national experts will be used. The degree to which the teachers implement the strategies developed during the seminars into their classroom instruction will be monitored over a several year period.

Sharan Merriam, University of Georgia

Sharan Merriam used a grant from the Center for Adult Learning Research to support her interest in developing an organizing scheme for the massive amount of literature specifically related to adult learning. She contends that in addition to books on adult learning (four of which have been published within the last two years), ERIC has well over 1000 citations on the topic, and nearly every issue of *Lifelong Learning* and the *Adult Education Quarterly* contains an article relevant to adult learning. After gathering and reading the books, most of the recent articles, and ERIC sources, she developed a framework that researchers and practitioners could use to sort the literature. Such a framework can be helpful in identifying a focus and resources for research or for designing workshops on the topic of adult learning.

The result is a matrix which sorts the literature into six categories. The categories are definitions and types of learning, characteristics of adult learners, learning ability, credos of adult learning, learning theory, and theories of adult learning. These categories vary in their power in *explaining* versus just describing adult learning and in their emphasis upon *adult* learning versus learning in general. The matrix has been published in an article in the April, 1988, issue of *Lifelong Learning*.

Burton Sisco, University of Wyoming

Two cognitive profile testing kits and a

quantity of cognitive style instruments were purchased by Burt Sisco through a grant from the Kellogg Center. This enabled him to broaden his ongoing research in adult cognition which would have been difficult to accomplish without the grant.

Training of Adult Learning Researchers

During 1988, 10 doctoral and 5 postdoctoral fellows joined with the faculty of the Kellogg Center in efforts to improve their skills in adult learning research. Much of this was done through self-initiated, self-planned activities or informal collaboration in small group settings. Formal activities included weekly research meetings, seminars, workshops, conferences and institutes, and formal classes. Resources of Montana State University and experts from other institutions and agencies were used occasionally to supplement the training resources of the Kellogg Center.

Weekly research meetings became occasions both for the sharing of information and insight and for struggling with problems inherent in doing research with adult learners. Doctoral fellows, for example, became adept at using electronic data base search procedures and updated the total group on specific content areas. Steps essential to the development of an assessment device useful for the measurement of learning strategies used by adults in real life learning activities were analyzed, and a procedure was agreed upon. Faculty of the university were invited into meetings as consultants on meta-analysis procedures.

Several seminars on adult learning were also held at the Kellogg Center. These served a dual purpose of advancing the formal training of doctoral fellows and at the same time providing training in adult learning and research for other students at Montana State University. Bob Fellenz and Linda Ziegahn taught a seminar on Qualitative Research Design during the spring quarter, and Gary Conti dealt with Computer Manipulation of Research Data during the fall quarter.

Workshops frequently were semiformal gatherings of the project staff for the purpose of developing specific competencies. Sessions on the use of BRS After Dark search procedures, Ventura desktop publishing software, Bitnet electronic mail facilities, and dBase data management procedures were organized for the total staff. Such sessions were lead by doctoral fellows, Kellogg Center faculty, or outside experts depending on who had developed expertise in the area. A second type of workshop used for the development of competencies was the offerings of Montana State University. Most frequently these were short courses on specific computer or statistical procedures.

Conferences and institutes provided opportunities for both dissemination of information and the development of professional skills. The planning of the summer institute held at MSU, for example, was a collaborative effort of the total staff. Later discussion of evaluative data gathered from participants provided feedback on decisions that had been made in the planning process. A list of conferences attended by Kellogg Center staff members is presented elsewhere in this report.

Formal coursework provides a major part of the training of doctoral fellows. This year was significant in that it marked the completion of doctoral degrees by three of the Kellogg Center's original doctoral fellows. Patricia Lundgren defended her dissertation on learning and change in adult diabetics in December, 1987, and followed up on this interest by going to work for the Indian Health Service on the Blackfoot reservation. Connie Blackwood left Montana for Alabama and became the Director of Adult Programs at Stamford University. Her doctoral study on brain hemisphere dominance, age, and self-direction was successfully defended in the spring. Barbara White also completed her dissertation in the spring and accepted a position at Montana State University as Instructional Development Specialist for the Extension Service and the Agricultural Experimental Station. Her dissertation dealt with selected instructional strategies, learning outcomes, and attitudes of adult learners in a mandatory education setting. Doctoral fellows Rodney

Fulton, Barbara Storm, and Betty White successfully passed comprehensive exams, and Jan Counter had a dissertation proposal approved. Newcomer Lynn Paul began course work in September.

The continued development of a graduate program in adult and community education is an important goal of the Kellogg Center. During the past year, applications for admission to the program increased significantly as did enrollments in program courses. The teaching of formal courses and the conducting of informal workshops in off-campus locations increased awareness of Montanans of the program. It appears that more and more students are viewing the Kellogg Center as an excellent resource for improving their knowledge and skills related to the teaching-learning processes of adults and are turning to the Kellogg Center's staff not only for traditional formal classroom work but also for innovative and individualized learning opportunities.

Dissemination

Dissemination activities became a major focus of the Kellogg Center's activities during the third year of operation. These activities fell into one of three broad categories: (a) presentations at state, regional, national, and international conferences; (b) publications in appropriate journals, books, and other print media; and (c) publication of monographs based on the research and other activities of the Kellogg Kellogg Center.

As in previous years, papers were presented not only by the research faculty but also by the doctoral and the postdoctoral fellows. A majority of the individuals associated with the project made presentations at the Adult Education Research Association Conference in Calgary and the American Association for Adult and Continuing Education convention in Tulsa. Presentations by Kellogg Center researchers were also made at the American Evaluation Association Conference, the Colorado Art Education Association Conference, the Commission on Adult Education Conference, Four Corners States Art Education Conference, the Montana Association of Vocational Education Special Needs Personnel meeting, the Mountain Plains Adult Education Association Conference, and the Northern Rocky Mountain Research Association meeting. Research from the Kellogg Center was presented internationally at the TransAtlantic Dialogue Research Conference in Leeds, England. In addition, presentations on the teaching-learning style research project were made at each of the seven tribal colleges which participated in the study. A complete listing of conferences attended and the 38 papers presented is included in Appendix A.

The researchers at the Kellogg Center are especially proud of the influence at the Adult Education Research Conference in Calgary. Of the 55 presentations made at this conference, Kellogg Center faculty and doctoral fellows were involved in 6 and postdoctoral fellows in another 7. Kellogg Center staff presented the only symposium session, and a Kellogg researcher provided the idea and organizational structure for the conference's first junto sessions. Collectively, this respresents 28% of the conference activities. In addition, a Kellogg researcher suggested the idea for thee junto (discussion) sessions which were introduced at this conference for the first time. As at the previous AERC meeting in Wyoming, the Kellogg Center provided refreshments in the conference's lounge area in order to create a climate more conducive to discussing research ideas. Through these activities, the Kellogg Center was able to have a major influence on the research conference which is the most prestigious in the field of adult education.

Publications by the Kellogg faculty, doctoral fellows, and postdoctorates appeared in a variety of publications. These included *Adult Education Quarterly*, *Adult Literacy and Basic Education*, *Lifelong Learning*, *Proceedings of the Adult Education Research Conference*, *Proceedings of the TransAtlantic Dialogue Research Conference*, plus several books which are currently in press. Appendix B contains a complete listing of the 21 publications and three editorships by the Kellogg Center staff.

The third year of the project marked the beginning of the publication of a series of

monographs through the Kellogg Center. The monographs are a major effort in disseminating the results of the research projects and other Kellogg Center sponsored activities. The first two monographs published were *Cognition and the Adult Learner* and *Spatial Reasoning and Adults*. The cognition monograph was edited by Bob Fellenz and was a summary of the papers presented at the Kellogg Center's first Summer Institute. The spatial reasoning monograph was written by Sharon LaPierre and reports the findings of her postdoctoral research. A third monograph, *Building Tomorrow's Research Agenda for Lifelong Learning*, contains the papers from the pre-AERC meeting and is currently in press. All published monographs have been distributed at no cost to all members of the Commission of Professors of Adult Education and to selected research libraries.

Third Year Linkage Activities

During the third year of the project, continued efforts were made to link the Kellogg Center with various aspects within the university and to continue to build linkages with other universities in the four state region. A key activity in this area was the funding of a doctoral fellow at the University of Wyoming (UW). This fellow is doing research with Dr. Burton Sisco of the UW adult education faculty. This provided a very positive link between the faculty, fellows, and research efforts at both UW and MSU. The Kellogg Center coordinator also continued to serve as a member of the Project Management Board for ICLIS and attended two board meetings. This valuable link between the research project and ICLIS provided not only a forum for exchanging information but also an opportunity for discussing how the two projects might more closely work together.

Within Montana State University, several activities were undertaken to more closely tie the Kellogg Center with university functions. Regular contact was maintained with the College of Education, Health, and Human Development through the Dean's Office. The faculty associated with the Kellogg Center continued to teach numerous graduate level courses within both the master's and doctoral programs. Special seminars focusing on research were offered to the entire university, and classes were taught both on and off campus. Kellogg Center faculty also expanded their role in terms of serving on an increasing number of graduate student committees and by serving on various department, college, and university level faculty committees. The faculty are on the graduate committees for most of the students in a special project serving the professional staff of the state's tribal community colleges. A series of open-house activities were also held at the Kellogg Center which were attended by faculty, administrators, and staff from various departments and offices on campus. These provided participants with an opportunity to tour the facility and gave the Kellogg Center faculty, fellows, and staff the chance to explain the purpose of the Kellogg Center and to talk about the research efforts currently underway.

Plans for Year Four

The Center for Adult Learning Research is entering its fourth and final year of initial funding from the Kellogg Foundation. Activities during this year will focus on bringing closure to numerous projects initiated during the past years and to seeking funding sources for long-term initiatives started during the past three years. Specifically, a third summer institute will be conducted which focuses on the social learning for adults. The training of doctoral fellows will continue with a combination of seminars, research meetings, independent research, and team research efforts. Support will be continued for postdoctoral research on both domestic and international topics. A series of monographs on research sponsored by the Kellogg Center will be published. The Kellogg research faculty will continue to conduct original research and to foster linkages with other departments, agencies, and institutions. Finally, all Kellogg Center staff will continue to disseminate their research findings at appropriate local, state, regional, national, and international conferences.

While completing projects that have been initiated the past three years, those at the Kellogg Center will also begin work in three areas that are rooted in the previous activities of the Kellogg Center. First, a comprehensive learning strategies instrument which reflects adult learning in real-life situations will be developed. Second, the relationship of culture to adult learning will be explored. Third, new models for effective learning in professional staff development situations will be investigated. Through these efforts, the research findings and cooperative linkages of the past three years will be consolidated into the future research direction of the Kellogg Center.

Appendix A

Presentations By Kellogg Center Staff

Individual Presentations

Conti, G. (1987, December) *Salish Kootenai College and the tribal college teaching-learning style study findings.* Paper presented at Staff Development Workshop, Salish Kootenai College, Pablo, MT.

Conti, G. (1987, December) *Blackfeet Community College and the tribal college teaching-learning style study findings.* Paper presented at Staff Development Workshop, Blackfeet Community College, Browning, MT.

Conti, G. (1987, December) *Stone Child College and the tribal college teaching-learning style study findings.* Paper presented at Staff Development Workshop, Stone Child College, Box Elder, MT.

Conti, G. (1987, December) *Fort Belknap College and the tribal college teaching-learning style study findings.* Paper presented at Staff Development Workshop, Fort Belknap College, Harlem, MT.

Conti, G. (1987, December) *Fort Peck College and the tribal college teaching-learning style study findings.* Paper presented at Staff Development Workshop, Fort Peck College, Popular, MT.

Conti, G. (1988, January) *Dull Knife College and the tribal college teaching-learning style study findings.* Paper presented at Staff Development Workshop, Dull Knife College, Lame Deer, MT.

Conti, G. (1988, January) *Little Big Horn College and the tribal college teaching-learning style study findings.* Paper presented at Staff Development Workshop, Little Big Horn College, Crow Agency, MT.

Conti, G. (1988, January). *Meeting the needs of the Native American student.* Paper presented at Western Wyoming College Conference, Riverton, WY.

Conti, G. (1988, October). *Update on publications.* Paper presented at College Reading Association Conference, Atlanta, GA.

Conti, G. (1988, November). *Learning style and what you can do about differences.* Paper presented at Indiana Adult Literacy Coalition Conference on Literacy Instruction, Indianapolis, IN.

Conti, G. (1988, November). *Evaluation skills: A professional development area.* Paper presented at National Adult Education Conf., Tulsa, OK.

Conti, G. (1988, November). *Understanding the adult learner.* Paper presented at Indiana Adult Literacy Coalition Conference on Literacy Instruction, Indianapolis, IN.

Counter, J. (1988, October). *Montana study: Innovative success or idealistic failure?* Paper presented at Northern Rocky Mountain Research Association Conference, Jackson Hole, WY.

Counter, J. (1988, October). *Strategies to enhance cooperative learning.* Paper presented at Montana Education Association Conference, Helena, MT.

Fellenz, R. (1987, December). *Learning styles/preferences.* Paper presented at National Community Education Conference, Minneapolis, MN.

Fellenz, R. (1988, May). *Creating a future agenda for adult learning research.* Symposium conducted at Adult Education Research Conference, Calgary, Alberta, Canada.

Fellenz, R. (1988, September). *Lifelong learning and self- sufficiency.* Paper presented at Governor's Conference on Aging, Billings, MT.

Fulton, R. (1988). *College teachers: Attending to the environment.* Paper presented at Today's College Teacher Conference, Butte, MT.

Fulton, R. (1988, April). *Designing environments that work.* Paper presented at Northwest Adult Education Association Conference, Spokane, WA.

Fulton, R. (1988, April). *Designing environments that work.* Paper presented at Mountain Plains Adult Education Association Conference, Jackson Hole, WY.

Fulton, R. (1988, August). *Reactions to the Sternberg and Weinstein presentations.* Panel Moderator. Kellogg Center for Adult Learning Research Summer Institute, Big Sky, MT.

Fulton, R. (1988, October). *An overview of adult learning research.* Paper presented at American Association for Adult and Continuing Education Conference, Tulsa, OK.

Fulton, R. (1988, November). *Kellogg panel for Swedish delegation.* Panel Moderator. American Association for Adult and Continuing Education Conference, Tulsa, OK.

La Pierre, S. (1988). *Spatial reasoning and its measurement*. Paper presented at Four Corners States Art Education Conference, Salt Lake City, UT.

La Pierre, S. (1988). *The language of spatial reasoning*. Paper presented at meeting of Colorado Art Education Association, Breckenridge, CO.

La Pierre, S. (1988, August). *The language of spatial reasoning*. Paper presented at Kellogg Center for Adult Learning Research Summer Institute, Big Sky, MT.

Storm, B. (1988, April). *Using the Myers-Briggs Type Indicator with the displaced homemaker*. Paper presented at 12th Annual Region V Conference for the Montana Association of Vocational Education Special Needs Personnel, Great Falls, MT.

Storm, B. (1988, April). *The older adult and learning*. Paper presented at Annual Conference for the Montana Gerontology Society, Lewistown, MT.

Ziegahn, L. (1988, May). *A conceptual framework for a study of community and competence among low literate adults*. Paper presented at Adult Education Research Association Conference, Calgary, Alberta, Canada.

Ziegahn, L. (1988, October). *In search of collegiality and continuity: Design of a staff development evaluation*. Paper presented at American Evaluation Association Conference, New Orleans, LA.

Ziegahn, L. (1988, October). *Political dimensions of a USAID project in Lesotho: What aspects of evaluation get institutionalized*? Paper presented at American Evaluation Conference, New Orleans, LA.

Ziegahn, L. (1988, November). *Skills for work: Who might we ask and what might we find*? Paper presented at American Association for Adult and Continuing Education Conference, Tulsa, OK.

Joint Presentations

Conti, G., & Dolan, D. (1988, April). *Multi agency cooperation = successful staff development programs for Montana math education*. Paper presented at National Council of Supervisors of Mathematics Conference, Chicago, IL.

Conti, G., & Fellenz, R. (1988, May). *Using a data management system to control research data entry and manipulation*. Paper presented at Adult Education Research Conference, Calgary, Alberta, Canada.

Conti, G., & Fellenz, R. (1988, May). *Teaching and learning styles and the Native American learner*. Paper presented at Adult Education Research Conference, Calgary, Alberta, Canada.

Conti, G., & Fellenz, R. (1988, June). *Teaching and learning of Native American adults*. Paper presented at Commission on Adult Basic Education Conference, Seattle, WA.

Conti, G., & Fellenz, R. (1988, July). *Teacher actions that influence Native American learners*. Paper presented at Transatlantic Dialogue Research Conference, Leeds, England.

Conti, G., & Fellenz, R. (1988, November). *Teaching and learning in the Native American community*. Paper presented at National Adult Education Conference, Tulsa, OK.

Counter, J., Fulton, R., White, B. L., & Wilson Glade, R. (1988, November). *An overview of adult learning research*. American Association for Adult and Continuing Education, Tulsa, OK.

Fellenz, R., & Conti, G. (1988, September). *College teaching in the tribal colleges*. Paper presented at Blackfeet Community College Staff Development Workshop, Browning, MT.

Fellenz, R., Lundgren, P., & White, B. A. (1988, May). *A classification of adult learning research*. Adult Education Research Conference, Calgary, Alberta, Canada.

Fulton, R., Storm, B., & White, B. L. (1988, August). *Overview of adult learning research*. Kellogg Center for Adult Learning Research Summer Institute, Big Sky, MT.

Storm, B., & Waldo, M. (1988, November). *Myers-Briggs Type Indicator: What does it mean to me and my group*. Paper presented at MSU Extension Service FCL Project and Montana Family Community Leadership Training Workshop, Bozeman, MT.

Appendix B

Publications By Kellogg Center Staff

Publications

Conti, G. J. (in press). Learning styles and what you can do about differences. *Indiana Literacy Coalition Newsletter.*

Conti, G. J. (in press). Teaching style and the reflective practitioner. In M. Galbraith (Ed.), *Adult learning methods: A guide for effective instruction.*

Conti, G. J. (in press). Teaching styles and the adult basic educator. In M. Taylor & J. Draper, *Adult basic education: A field of practice.*

Conti, G. J. (in press). Understanding the adult learner. *Indiana Literacy Coalition Newsletter.*

Conti, G. J. (1988). Review of *Understanding and facilitating adult learning. Adult Education Quarterly.*

Conti, G. J., & Fellenz, R. A. (1988). Teacher actions that influence Native American learners. In M. Zukas (Ed.), *Proceedings of the Trans-Atlantic Dialogue Research Conference*. Leeds, England: University of Leeds.

Conti, G. J., & Fellenz, R. A. (1988). Teaching and learning styles and the Native American learner. *Proceedings of the 29th Annual Adult Education Research Conference* (pp. 67-72). Calgary, Alberta, Canada: University of Calgary.

Conti, G. J., & Fellenz, R. A. (1988). Using a data management system to control research data entry and manipulation. *Proceedings of the 29th Annual Adult Education Research Conference* (pp. 73-78). Calgary, Alberta, Canada: University of Calgary.

Fellenz, R. A. (in press). Applying naturalistic evaluation in basic education. In M. Taylor & J. Draper, *Adult basic education: A field of practice.*

Fellenz, R. A., & Seaman, D. F. (in press). *Effective stategies for teaching adults.* Columbus, OH: Charles Merrill.

Fellenz, R. A. (1988). Review of *Helping adults learn. Adult Education Quarterly, 39*(1).

Fulton, R. (in press) *A bibliography of sources on adult learning and the physical environment.* ERIC Clearinghouse on Educational Management.

Fulton, R. (in press). An overview of research on physical learning environments. *Resources in Education.*

Fulton, R. (in press). Review of *Teaching students to think critically. Adult Education Quarterly.*

Fulton, R. (1988). Physical learning environments-why be concerned? *New Horizons in Adult Education, 2,* pp. 11-21, 88.

Fulton, R. (1988). The physical environment in adult learning. *Adult Literacy and Basic Education, 12*(1), 48-55.

Fulton, R. (1988). Review of *The Americanization Syndrome. Lifelong Learning, 12*(3), 21.

Fulton, R, (1988). Review of *Towards a history of adult education. Mountain Plains Journal of Adult Education, 17*(1), 19-20.

La Pierre, S. D. (in press). Creating one's "own thing" as an artist. *Collage.*

Ziegahn, L. (in press). Internal evaluation in a developing organization: Impediments to implementation. *Studies in Educational Evaluation.*

Ziegahn, L. (1988). A conceptual framework for a study of community and competence among low-literate adults. *Adult Education Research Conference Proceedings* (pp. 318-323). Calgary, Alberta, Canada: The University of Calgary.

Editorships

Conti, G. J. & Fellenz, R. A. (1983-present). *Adult Literacy and Basic Education*. An international journal for basic adult education published by the Commission on Adult Education, AAACE.

Fellenz, R. A. (Ed.) (1988). Cognition and the adult learner. *Kellogg Center for Adult Learning Research Monograph Series*. Montana State University, Bozeman, MT.

Fellenz, R. A. (Ed.) (1988). Spatial reasoning and adults. *Kellogg Center for Adult Learning Research Monograph Series*. Montana State University, Bozeman, MT.

Appendix C

Kellogg Center for Adult Learning Research 1988 Summer Institute Participants

Beaudin, Bart P.	Colorado State University
Blackwood, Constance	Samford University
Bowes, S. Gregory	University of New Mexico
Brockett, Ralph G.	University of Tennessee
Caffarella, Rosemary S.	Virginia Commonwealth University
Coggins, Chere Campbell	University of Wisconsin-Madison
Counter, Janice	Montana State University
Darkenwald, Gordon G.	Rutgers University
Fellenz, Robert A.	Montana State University
Fulton, Rodney	Montana State University
Gueulette, David G.	Northern Illinois University
Gregg, Gloria A.	Montana State University
Hiemstra, Roger	Syracuse University
Korhonen, Lloyd	University of Oklahoma
LaPierre, Sharon	Montana State University
Lewis, Helen	Highlander Research Center
Lewis, Linda H.	University of Connecticut
Long, Huey B.	University of Oklahoma
Martin, Larry	University of Wisconsin-Milwaukee
Merriam, Sharan	University of Georgia
Paul, Lynn	Montana State University
Pratt, Daniel	University of British Columbia
Rogers, John	Montana State University

Seaman, Don	Texas A&M University
Shirk, John	North Central Bible College
Sisco, Burton	University of Wyoming
Sternberg, Robert	Yale University
Storm, Barbara	Montana State University
Valentine, Thomas	Syracuse University
Weinstein, Claire	University of Texas-Austin
White, Barbara	Montana State University
White, Betty	Montana State University
Wilson-Glade, Robin	University of Wyoming
Ziegahn, Linda	Montana State University